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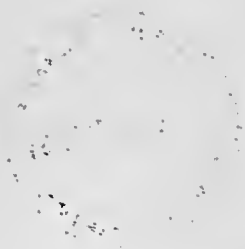


FRANCIS WALKER'S
APHIDS

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BRITISH MUSEUM (NATURAL HISTORY)

FRANCIS WALKER'S APHIDS

by

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LONDON

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Preface

This is the second book published by the Trustees which seeks to clarify the work of Francis Walker whom they employed, albeit in an unofficial capacity, from 1840 to 1860 in the old Insect Room at Bloomsbury. An account of Walker's activities is given in the preface to the first, *The Francis Walker Types of Trichoptera in the British Museum*, by Betten and Mosely, published in 1940, and need not be repeated here. Walker's name has come to be a by-word amongst insect taxonomists for his inaccuracy and superficiality. There is no doubt that, at one time, the reputation of the Museum suffered considerably from his poor systematic work. Nevertheless, as Doncaster points out, Walker made a significant and important advance in aphidological knowledge and, as Riley says, his catalogues and lists formed the nucleus of described species around which the vast collections of today have been built.

In his *List of the Specimens of Homopterous Insects in the Collections of the British Museum*, Part IV, 1852, Walker included 378 species of aphids, of which 170 were species erected by himself. The descriptions of his species, which he published during the period 1848-1850, are often so inadequate that it is impossible to identify them without reference to his types. Although he designated no types as such, many of Walker's original aphid specimens are still extant, the majority mounted in balsam and labelled by himself. From an examination of this material Mr. J. P. Doncaster has found it possible firstly to establish beyond reasonable doubt those of Walker's species which have recognizable types, and secondly by interpreting the information contained in the descriptions, host plant records and other available data, to identify at least some of those species which have no types. The purpose of the present volume is to make known the results of Doncaster's studies and thus to dispel at least some of the confusion and uncertainty which for more than a century have obscured the identities of so many of Walker's aphid species.

It is to be hoped that similar volumes elucidating Walker types in other groups will become available in the not too distant future.

W. E. CHINA
Keeper of Entomology

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Acknowledgements

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WALKER'S APHID STUDIES

Francis Walker seems first to have turned his attention to the study of aphids in the autumn of 1846 when he observed them swarming and ovipositing on furze. In the summer and autumn of the following year he made copious and systematic collections of such species as he could find in the neighbourhood of his home in Southgate, at that time a country town a few miles north of London. Most of the specimens he then collected were preserved by him in balsam mounts, of which about thirteen hundred still survive to testify to his diligence during that period. Many more specimens, including some he received from collectors in other localities, were stored dry on pins or cards in the collections of the British Museum. While a number of these have survived more or less intact and others have been salvaged by his successors, some have almost certainly been lost. Nevertheless, it is fortunate that so much of his original aphid material remains, for although Walker designated no types, his collections contain many specimens that must be in fact the types of the species he described.

Walker's principal work on aphids was published in *The Annals and Magazine of Natural History* during the period 1848-1850 as a series of articles which together formed a conspectus of the British species comprised in what was then regarded as the genus *Aphis*. On the basis of structural and behavioural affinities he subdivided the genus into a number of 'Groups' which foreshadow at least a few of the numerous genera and higher categories erected by later taxonomists. Although some of his descriptions, especially among the last of those published in this series, are brief and inadequate, most of them by the standards of his time are full and accurate, the best of them remarkably so. Many of them indeed are sufficient by themselves to identify his species without recourse to his types, and have for long been universally accepted as valid. In these papers Walker included the descriptions of thirty new species, of which nearly four-fifths are recognized as valid today. It has now been found, moreover, that nearly all of these species are supported by named specimens in Walker's collections, two-thirds of them in original balsam mounts. These writings also show that, probably as the result of his skill and thoroughness as a collector, he was familiar with the distinctions between the sexual and parthenogenetic forms (apterous and alate), as well as with the habitual migration of some species to secondary hosts during the summer. In fact there can be no doubt that this contribution of Walker's to contemporary knowledge of aphidology represented a significant and important advance.

Concurrently with the publication of his synopsis of the genus *Aphis*, there appeared a series of contributions to *The Zoologist* in which Walker described what he claimed were new species of aphids. In them he made no attempt at systematic arrangement but listed his species, each with a brief diagnosis, according to the plants from which

they were taken. Although the best of the descriptions in this series are of a standard comparable with some of those in the *Annals and Magazine*, most of them are ambiguous, inadequate, and bear all the signs of hasty and perfunctory compilation. This is the more regrettable since these papers contain descriptions of no fewer than 109 new species, representing about two-thirds of all the aphid species he erected. Furthermore, only seven of these species can be related to original balsam mounts, while of the rest, half appear to be based on dried specimens and half have no types at all. In the writer's opinion only fifteen can be accepted as valid, the remainder being either synonymous with older species or unidentifiable.

In 1852 there appeared Part 4 of Walker's *List of the Specimens of Homopterous Insects in the Collections of the British Museum* (hereafter referred to as 'the Catalogue') in which he brought together in systematic order all the aphid species then known to him. Besides species of European and American authors and those already published by Walker himself, the list includes thirty species described here for the first time. It also includes those genera other than *Aphis* that he omitted from his earlier work, thus completing his survey of the 'Family' Aphidina (of Burmeister). To many of the previously published species listed here Walker added further descriptive details, but most of these refer only to the relative distances separating the veins of the fore wing and are of little or no diagnostic value (a typical example is the description of the alate *abrotani* quoted on p. 15 below). In the case of some species, though by no means all, the Catalogue indicates the numbers of specimens preserved either dry or in balsam mounts in the collections; information which has since proved useful in establishing some of Walker's types. In all, the list of the Aphidina comprises 378 species, 170 of which were erected by Walker. Of the thirty species described here as new, rather more than half are apparently without types, the remainder being represented partly by balsam mounts and partly by dry specimens. Only seven can be accepted as valid.

With the publication of this Catalogue in 1852 Walker's major contributions to aphidology came to an end. In 1858 there appeared a supplement to the Catalogue, but this contains no more than a list of such species as had been published in the interval, mainly those of Koch (1854-1857), none of which apparently were ever represented by specimens in the British Museum collections. Ten years later in *The Zoologist* (1868, 1870), Walker contributed a series of papers in which he gave a translation of Passerini's system of aphid classification (Passerini 1860, 1863), adding to it some notes of his own. In the course of these annotations he erected ten new genera (listed below, p. 10) and recorded his last new species, *Aphis ulicis*, the sight of which swarming on furze twenty-four years earlier marked the commencement of his studies on aphids.

In all, Walker's contributions to aphidology posed more problems than they solved. To his lasting credit it must be said that to have succeeded during little more than half a year in adding nearly fifty species to the two hundred or so then known from Europe is indeed a remarkable achievement, but it is tragic that his success as a collector should have been so largely vitiated by his deficiencies as a taxonomist, the more so since the quality of his earlier published work plainly shows that he had the ability to succeed in both capacities. As a consequence of his urge to rush new species into

print without adequate descriptions or designated types, he left behind him a legacy of dubious names the interpretation of which has baffled taxonomists ever since.

Soon after Walker's death in 1874, Buckton produced his *Monograph of the British Aphides* (1879-1883) in which he included many of Walker's species, some identified correctly, others not. In this work Buckton made frequent reference to Walker, with whom he appears to have been on friendly terms and from whom he acquired a number of original balsam mounts of aphids; but his monograph is of no assistance in establishing the identity of Walker's less well-documented species. This is not surprising when it is realized that the only key to the identification of most of them lay in the dry specimens reposing in the British Museum.

For more than half a century it seems that Walker's specimens remained untouched, until in 1919 Laing, at that time curator of the aphid collections, began to publish his all-too-brief series of redescriptions of a few of Walker's species, based on specimens he believed to be types which he had relaxed and mounted from the Dry Collection. Although his descriptions were carefully compiled and well illustrated, Laing was sometimes misled by wrongly labelled specimens and not all his identifications were correct. Laing supplied some further information on Walker's aphids to Theobald who incorporated it, together with opinions of his own, in his volumes on British aphids (1926, 1927, 1929); but many of his conclusions were mistaken, and several of Walker's more dubious names he was unable to identify at all.

In preparing the material for his critical appraisal of Theobald's work, Hille Ris Lambers (1933-1934) visited the British Museum (Natural History), and from a brief examination of the Walkerian slides available at the time, was able to confirm some of Theobald's conclusions and correct others. Later, in his *Contributions to a Monograph of the Aphididae of Europe* (1938, 1939, 1947, 1949, 1953) and in other publications he established the identity of several Walkerian species from his knowledge of the original material he had examined.

In Germany Börner, who had never seen the Walker collections, attempted to find attributions for nearly all Walker's aphid names, regardless of whether there existed any real evidence on which to establish their identity. His conclusions, based solely on the information provided by the authors already mentioned, together with that contained in Walker's often lamentably inadequate descriptions and host plant records, are incorporated in his *Europae Centralis Aphides* (1952). In the writer's opinion this practice of arbitrarily 'finding homes' for names which should properly be regarded as *nomina dubia* is to be deplored, and it will be shown later that many of Börner's attributions are erroneous.

WALKER'S APHID COLLECTIONS

The Slide Collections

The greater part of the existing known material of Walker's aphids is in the form of balsam mounts, nearly all of which bear his own data labels giving the specific name, host plant, locality, and date of collection. In the British Museum (Natural History) there are now nearly 800 of these slides, acquired from various sources and at different times. The Trustees purchased a number of these slides in 1847 and Walker himself presented many more between that time and the publication of the 1852 Catalogue. More were added when the Trustees acquired, in 1906, G. B. Buckton's collection of Homoptera, which included many original Walkerian slides. Of these sixty-nine are still extant. Further additions of original material were made more recently by the acquisition of twenty-four slides from the Royal College of Science in 1937; of over 250 slides, once the property of Sir Oswald Mosley, presented by Mr. C. H. Knowles in 1940; and finally of 170 slides discovered in 1953 in University College, Dundee, and presented to the Trustees by their finder, Dr. A. R. Hill, on the advice of Mr. H. L. G. Stroyan.*

Besides those in the British Museum (Natural History), there are two other known collections of Walker's aphids; one, of 385 slides, in the Hope Department of Entomology, Oxford, and the other, of 136 slides, in the National Museum of Ireland, Dublin.

The total of Walker's aphid slides known to exist thus amounts to about 1,300, representing perhaps 120 of the aphid species recognized by him, but covering only thirty-six of the species he named and described as new. For the most part the slides are in good condition and although many of the specimens are inadequately cleared and poorly positioned on the slide, they are well preserved and can usually, if necessary, be extracted and remounted with complete success.

There can be no question that Walker's aphid slides with their attached holograph labels form the most valuable part of his collections, and must be regarded as a much more reliable basis upon which to establish the identity of his species than the Dry Collection, in which the risk of specimens and labels becoming separated in the course of re-arrangements is clearly greater.

The slides, moreover, with their fuller data, afford a glimpse of Walker's collecting methods. Their labels show that nearly all his aphids were collected in 1847, the majority in Southgate. On a few dates, all the daily captures are recorded from one or other of

* Among twenty-six slides of aphids, acquired by the Trustees from the collection of the late Mr. A. I. Steven in 1957, are sixteen which are unquestionably Walker's. All contain species which are already represented in the Walker Collections.

the neighbouring districts of Tottenham, Edmonton, and Epping; on three occasions from Birchwood, Kent; and twice from Dulwich, in south London. Samples from farther afield were obtained from Burton-on-Trent (five), Berwick (three), Dunbar (one), Belfast (two), Wicklow (one), and Aix la Chapelle (one). The samples from Berwick and Dunbar were probably sent to him by James Hardy, and those from Ireland by A. H. Haliday, to both of whom Walker makes acknowledgements in his publications. The single sample from Aix la Chapelle, consisting of alate females of (apparently) *Anoecia corni* (Fabricius) Group, may have been sent to him by Kaltenbach. Walker's collecting began in April and ended in December. During May, June, July, and August he collected aphids nearly every day; in September his activity decreased, but was renewed in October and November. During June and July he usually collected from ten to fifteen different species in a day. It was his practice to make successive collections of the same species from the same host and locality throughout the season: for instance there are samples of '*Aphis Aceris*' from maple and sycamore at Southgate on eighteen different dates between April and October, 1847. As a result, several of the species he collected are represented by many, if not all, of their forms from fundatrix to ovipara. This system also furnished him with numbers of duplicate slides of each species, which were eventually apportioned to the various collections that found their way to centres such as Oxford and Dublin.

The Dry Collection

In addition to the slide collections, there is in the British Museum (Natural History) a collection of aphids, nearly all believed to be Walker's, which were originally mounted on pins or cards and stored in cabinet drawers. Many of these specimens were mounted on slides by Mr. F. Laing during his curatorship of the collections, and the remainder have since been mounted by the writer. These aphids were originally grouped according to species over labels bearing the generic and specific names only, and information, if any, relating to individual insects was recorded on paper slips attached to the pins of the specimens to which it referred. The species labels corresponded in nomenclature, and often also in their order of arrangement, with Walker's 1852 Catalogue and with the supplement to it (1858). This arrangement provided for 477 aphid species of which about a quarter are, or were, represented by actual specimens. Of the Walkerian species included here, forty-eight are supported by specimens.

From the documentary standpoint the Dry Collection is less satisfactory than the slides. The only evidence that can be adduced to link this material directly with Walker is the presence with certain specimens of holograph data labels attached to the pins. Certain other specimens, however, can be related indirectly with him by their registration numbers which indicate that they were presented to the Museum in Walker's time and (e.g. those presented by Edward Doubleday) were certainly known to him, as references to them occur in the Catalogue. It is now apparent that a considerable amount of misplacement of specimens and labels must in fact have occurred in the

Dry Collection, for which Walker himself seems to have been partly to blame. More than once, having described a group of new species, he seems to have neglected to label the specimens accordingly, and to have left them all together over a single label in the collection. Sometimes, by comparing specimens individually with descriptions it has been possible to allot to them the names that Walker presumably intended they should bear.

The Arrangement of the Present Catalogue

In compiling the present work the intention has been to establish those of Walker's names that are supported by clear evidence of their identity and to regard the remainder as *nomina dubia*. Specimens named by Walker that agree with his descriptions of the species so named have been regarded as typical, and the selection of suitable lectotypes in such cases has presented no difficulty. Species unsupported by named material have been identified only if there seems to be sufficient evidence to prove that an unnamed or misnamed Walkerian specimen is in fact the type, or, in the absence of any such specimen, only if sufficient indications are given in the original description, host plant record and other data to leave no doubt as to its identity.

In the following pages all the Walkerian species in the 1852 Catalogue are arranged alphabetically in order of their specific names. In each case the name used in the Catalogue is given first, followed by the currently accepted name in bold type. The original description of each species is given in full, together with any other relevant data. The species fall into three categories. The first comprises forty-seven species, identifiable by types or by inference, the names of which are valid. Types have been fixed and described for thirty-seven of these species; the remaining ten have been identified from their descriptions and other data. In the second category come eighty species, fifty-nine of which are identifiable by types and the remainder by inference, the names of which are known or believed to be synonyms. As the types of these species are nearly all well-known common aphids, descriptions of them are, with one or two exceptions, omitted. The third category contains forty-four names which cannot be identified from available data and are classed as *nomina dubia*. A list of the species, classified in this manner, follows:

A. WALKERIAN SPECIES, IDENTIFIABLE BY TYPES (*) OR BY INFERENCE, THE NAMES OF WHICH ARE VALID.

- | | |
|-------------------------------|----------------------------|
| * abietinum (Elatobium) | * auctus (Acyrtosiphon) |
| * abrotani (Macrosiphoniella) | * bufo (Iziphyia) |
| * accicola (Periphyllus) | * carduinus (Capitophorus) |
| * acerinum (Drepanosiphum) | * certus (Myzus) |
| * adjuvans (Aspidaphis) | comes (Clethrobis) |
| * americanus (Prociphilus) | confusa (Aphis) |
| * asteris (Macrosiphoniella) | * crataegarius (Ovatus) |

- | | |
|---------------------------------|-------------------------------|
| * cyperi (Thripsaphis) | * potentillae (Chaetosiphon) |
| devecta (Dysaphis) | * praeterita (Aphis) |
| diphaga (Aphis) | * pulvera (Macrosiphoniella) |
| * dirhodum (Metopolophium) | * ranunculina (Tubaphis) |
| * eriophori (Ceruraphis) | * rufula (Schizaphis) |
| * fragariae (Macrosiphum) | salviae (Aphis) |
| * frequens (Cuernavaca) | * sejuncta (Macrosiphoniella) |
| * hippophaes (Capitophorus) | * submacula (Maculolachnus) |
| * hirticornis (Periphyllus) | * subterranea (Anuraphis) |
| humilis (Hyalopteroides) | * tanacetina (Coloradoa) |
| * insertum (Rhopalosiphum) | * tetrarhodus (Chaetosiphon) |
| insitus (Ovatus) | * tribulis (Megourella) |
| inulae (Ovatus) | * trirhodus (Longicaudus) |
| * laricis (Cinara) | * tussilaginis (Dactynotus) |
| lateralis (Brachycaudus) | *† ulicis (Aphis) |
| * littoralis (Sipha) | veratri (Aphis) |
| * persequens (Macrosiphoniella) | |

B. WALKERIAN SPECIES, IDENTIFIABLE BY TYPES (*) OR BY INFERENCE,
THE NAMES OF WHICH ARE SYNONYMS.

- * abietaria: *Aphis fabae* Scopoli
- * abietis: *Cinara pilicornis* (Hartig)
- addita: *Aphis fabae* Scopoli
- * adducta: *Aphis fabae* Scopoli
- * adjecta: ? *Brachycaudus helichrysi* (Kaltenbach)
- * adjuta: *Macrosiphum* (Sitobion) *avenae* (Fabricius)
- * adscita: *Brachycaudus helichrysi* (Kaltenbach)
- * advena: *Aphis fabae* Scopoli
- * amica: *Macrosiphoniella pulvera* (Walker)
- * apposita: *Brachycaudus helichrysi* (Kaltenbach)
- * asperulae: *Myzus cerasi* (Fabricius)
- * atomaria: *Macrosiphoniella pulvera* (Walker)
- * bartsiae: *Brachycaudus helichrysi* (Kaltenbach)
- * basalis: *Acyrtosiphum pisum* (Harris)
- * chrysanthemi: *Brachycaudus helichrysi* (Kaltenbach)
- collega: *Macrosiphoniella pulvera* (Walker)
- * conjuncta: *Amphorophora rubi* (Kaltenbach)
- * consors: *Myzus persicae* (Sulzer)
- conspersa: ? *Aphis confusa* Walker
- * consueta: *Macrosiphum* (Sitobion) *avenae* (Fabricius)
- consumpta: *Brachycaudus helichrysi* (Kaltenbach)
- * contermina: *Lipaphis erysimi* (Kaltenbach)
- convecta: *Brachycaudus helichrysi* (Kaltenbach)
- conviva: *Brachycaudus helichrysi* (Kaltenbach)
- * cynoglossi: *Amphorophora rubi* (Kaltenbach)
- * deposita: *Myzus persicae* (Sulzer)

† Not in 1852 Catalogue.

- derelicta: *Myzus persicae* (Sulzer)
- * detracta: *Brachycaudus helichrysi* (Kaltenbach)
- diminuta: ? *Brachycaudus helichrysi* (Kaltenbach)
- egressa: *Myzus persicae* (Sulzer)
- * epilobiina: *Aphis praeterita* Walker
- * euphrasiae: *Myzus cerasi* (Fabricius)
- * exul: *Aphis sambuci* Linnaeus
- * familiaris: *Brachycaudus helichrysi* (Kaltenbach)
- * globosus: *Smynthuroides betae* Westwood
- * gnaphalii: *Macrosiphum* (Sitobion) *avenae* (Fabricius)
- * gracilis: *Hyalopterus pruni* (Geoffroy)
- impingens: *Glyphina betulae* (Linnaeus)
- incerta: ? *Aulacorthum solani* (Kaltenbach)
- * incumbens: *Brachycaudus helichrysi* (Kaltenbach)
- indecisa: ? *Aulacorthum solani* (Kaltenbach)
- indistincta: *Aphis fabae* Scopoli
- * inducta: *Aphis fabae* Scopoli
- inhaerens: *Betulaphis quadrituberculata* (Kaltenbach)
- * insessa: *Brachycaudus helichrysi* (Kaltenbach)
- * insita: *Brachycaudus cardui* (Linnaeus)
- * lata: *Brachycaudus cardui* (Linnaeus)
- * limonii: *Staticobium limonii* (Contarini)
- * lycopsidis: *Macrosiphum* (Sitobion) *avenae* (Fabricius)
- * mactata: *Rhopalosiphum insertum* (Walker)
- * melissae: *Ovatus crataegarius* (Walker)
- menthae: *Ovatus crataegarius* (Walker)
- * nociva: *Brachycaudus helichrysi* (Kaltenbach)
- * obscura: *Anoecia corni* (Fabricius)
- * pallida: *Aulacorthum solani* (Kaltenbach)
- * particeps: *Myzus persicae* (Sulzer)
- * persola: *Myzus persicae* (Sulzer)
- * persorbens: *Brachycaudus helichrysi* (Kaltenbach)
- picta: *Aphis sambuci* Linnaeus
- pilosa: ? *Cryptaphis poae* (Hardy)
- * polygoni: *Aspidaphis adjuvans* (Walker)
- * prunaria: *Rhopalosiphum nymphaeae* (Linnaeus)
- * prunina: *Brachycaudus helichrysi* (Kaltenbach)
- * quaerens: *Cryptomyzus galeopsidis* (Kaltenbach)
- * reducta: *Macrosiphoniella pulvera* (Walker)
- * redundans: *Myzus persicae* (Sulzer)
- * salicivora: *Tranaphis capreae* (Mosley)
- * secunda: ? *Phorodon humuli* (Schrank)
- similis: ? *Brachycaudus helichrysi* (Kaltenbach)
- * sinensis: *Schlechtendalia chinensis* (Bell)
- * socia: *Brachycaudus helichrysi* (Kaltenbach)
- * sodalis: *Acyrtosiphon malvae* (Mosley)
- * tenuior: ? *Cinara laricis* (Walker)
- tincta: ? *Macrosiphum* sp.
- * transiens: *Aphis nasturtii* Kaltenbach
- * translata: *Aphis fabae* Scopoli

- triphaga: *Aphis epilobii* Kaltenbach
 vacillans: ? *Anuraphis farfarae* (Koch)
 * veronicae: *Myzus cerasi* (Fabricius)
 * vincae: *Aulacorthum solani* (Kaltenbach)

C. WALKERIAN NOMINA DUBIA

albipennis	glechomae
alterna	illata
ascita	impacta (a)
assidua	impacta (b)
assueta	inculta
bellula	internata
betulina	introducta
bifrons	juglandina
cadiva	nigro-rufa
cerasina	nutricata
cisti	palans
commoda	pollinosa
consona	relata
despecta	robusta
dispar	suffragans
dissita	superabilis
diversa	tentans
egens	tertia
ericae	transmutata
euphorbiae	transposita
extranea	turbida
flaveola	valida

This catalogue also includes six manuscript names which appear on the labels of some of Walker's slides but were never published. Five of these—*crataegina*, *epilobiaria*, *fulva*, *ovina* and *salicina*—were apparently discarded by him in favour of other names; the sixth, *submissa*, he applied to a species which was not found again until 1953 and is here described for the first time.

Synonymies, which are given for all valid Walkerian names, are not claimed to be exhaustive. As a rule the authors quoted in them are only those who have made some contribution to the taxonomy of the species in question.

Individual specimens referred to in the text are given the initials and serial numbers of the collections to which they belong, namely B.M. (British Museum (Natural History)), H.D. (Hope Department of Entomology, Oxford), and N.M.I. (National Museum of Ireland, Dublin).

In descriptions of types, the colour characters refer to macerated and cleared specimens.

WALKER'S APHID GENERA

Liosomaphis 1868, p. 1119 (type: *Aphis berberidis* Kaltenbach, 1843).

Therioaphis 1870, p. 1999 (type: *Aphis ononidis* Kaltenbach, 1843).

Tranaphis 1870, p. 1999 (type: *Aphis salicivora* Walker, 1848 = *Cinara capreae* Mosley, 1841).

Arctaphis 1870, p. 2000 (type: *Chaitophorus populi* Koch, 1854).

Agrioaphis 1870, p. 2000 (type: *Aphis myricae* Kaltenbach, 1843).

Stomaphis 1870, p. 2000 (type: *Aphis quercus* Linnaeus, 1758).

Callaphis 1870, p. 2000 (type: *Lachnus juglandis* Kaltenbach, 1843).

Chromaphis 1870, p. 2001 (type: *Lachnus juglandicola* Kaltenbach, 1843).

Euceraphis 1870, p. 2001 (type: *Aphis betulae* Walker non Linnaeus, 1758).

Monaphis 1870, p. 2001 (type: *Aphis antennata* Kaltenbach, 1843).

The name *Arctaphis* is a synonym of *Chaitophorus* Koch, 1854, and *Agrioaphis* is a synonym of *Myzocallis* Passerini, 1860. The remaining genera are valid.

WALKER'S APHID SPECIES

Aphis abietaria Walker = ***Aphis fabae*** Scopoli

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1035.

Originally described, without host plant, locality, or other data, as follows:

'*Nigra, obscura, convexa, subovata, albo pollinosa; antennae corporis dimidio vix longiores; cornicula brevia; pedes sat breves.*

The viviparous wingless female. Nearly oval, very convex, dull coal-black, with a slight white tinge, rather larger than *A. Abietina*: feelers rather more than half the length of the body: legs are rather short: nectaries about one-twelfth of the length of the body.

a. England. Presented by F. Walker, Esq.'

A single specimen, mounted from the Dry Collection by Laing, is the larva of an *Aphis* species, apparently *fabae* Scopoli. This would correspond with the description and is presumed to be the type of *abietaria* (B.M. 1).

Börner (1952, p. 45) put *abietaria* Walker as a synonym of *Lachniella costata* (Zetterstedt), presumably on the evidence of the host association implied by the name.

Aphis abietina Walker = ***Elatobium abietinum*** (Walker)

1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 3, 301: *Aphis abietina*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 976: *Aphis abietina*.

1877 Buckton, G. B., *Monograph of the British Aphides*, 2, 43: *Aphis abietina*.

1913 Goot, P. van der, *Tijdschr. Ent.*, 56, 96: *Myzaphis abietina*.

1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 182: *Myzaphis abietina*.

1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 262: *Neomyzaphis abietina*.

1930 Börner, C., *Arch. klass. phylog. Ent.*, 1 (2), 185: *Elatobium abietinum*.

1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 614: *Liosomaphis abietina*.

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Neomyzaphis abietina*.

1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 119: *Liosomaphis (Elatobium) abietinum*.

1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 179: *Liosomaphis (Elatobium) abietinum*.

Originally described as follows:

'*The viviparous wingless female.* This is oval, green, convex, rather dull, and half a line in length: the head and the limbs are paler and sometimes tinged with yellow: the front of the head is convex in the middle, but concave on each side, from whence there is a small protuberance extending to the base of the feelers: the feelers are brown towards the tips and about half the length of the body; the inner side of the first joint is convex, and has no process; the fourth joint is more than half the length of the third; the fifth is much shorter than the fourth;

the sixth is a little shorter than the fifth; the seventh is longer than the sixth: the eyes are dull red: the tip of the mouth is brown: the nectaries have brown tips, and are about one-fourth of the length of the body, which has a slight rim on each side of the back: the legs are moderately long; the knees, the feet, and the tips of the shanks are brown. The young ones are as usual narrow, flat, and linear, and have short white limbs.

In 1846, a year remarkable for the mildness of the winter and of the spring, it had attained its full size before the end of January, and was very abundant near London beneath the leaves of the spruce-firs, some of which were stripped of their foliage in consequence of its attacks. It does not disappear before the latter part of November.

The viviparous winged female. This form comprises the second generation, and in 1846 its wings were unfolded before the end of March. It is green: the disc of the chest and that of the breast, the feelers, the tip of the mouth, the tips of the nectaries, the knees, the feet, and the tips of the shanks are brown: the feelers are more than half the length of the body; the fourth joint is very much shorter than the third; the fifth is a little shorter than the fourth; the sixth is shorter than the fifth; the seventh is a little longer than the sixth; and the nectaries are about one-sixth of the length of the body: the wings are colourless and about twice the length of the body: the wing-ribs and the brands are green, and the veins are pale brown; the first and the second veins diverge much from each other, but the second and the third veins are nearly parallel; the latter has its first fork after one-third and its second fork a little before two-thirds of its length; it is more or less obsolete at the base; the fourth vein is much curved, and the angle of the brand whence it springs is hardly perceptible.

Variations of the wing-veins. 1st var. The lower branch of the first fork of the third vein is wanting.

Length of the body $\frac{3}{4}$ line; of the wings $2\frac{1}{4}$ lines.*

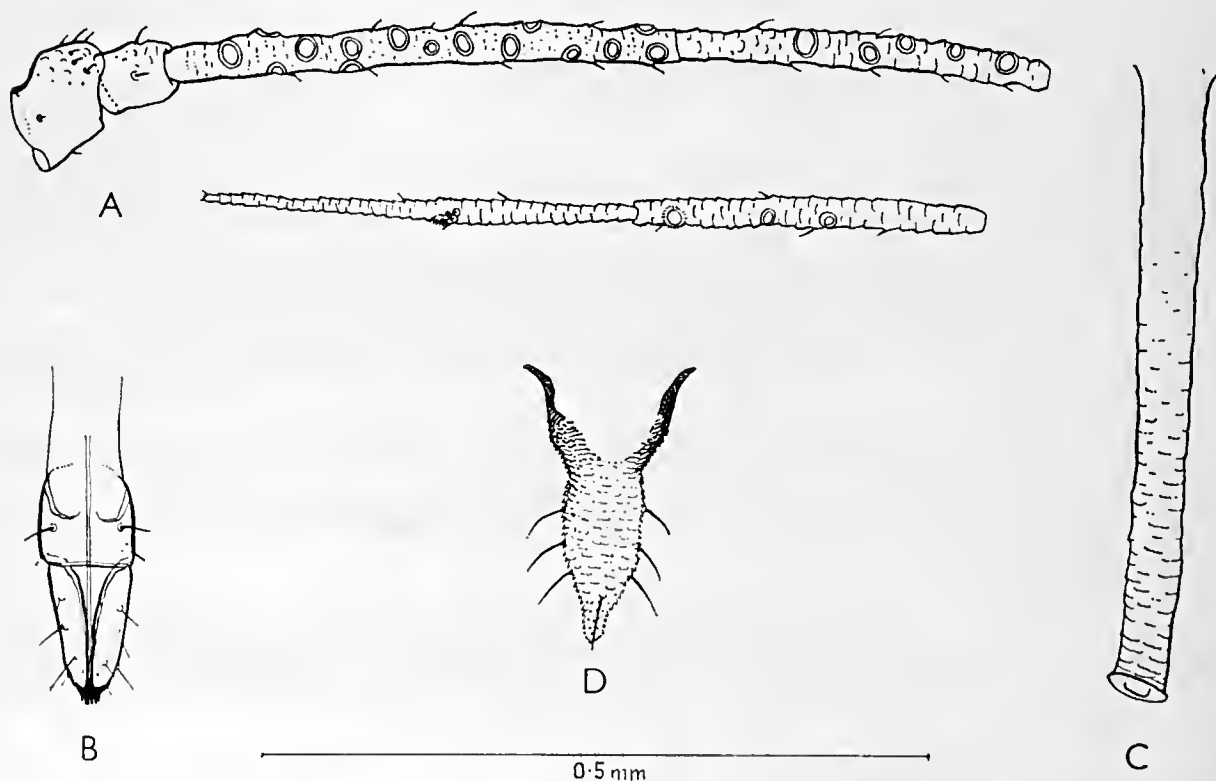


Figure 1. *Elatobium abietinum* (Walker), lectotype, alate viviparous female, H.D. 273. A. Antennal joints I-IV (right) and V-VI (left); B. Apex of rostrum; C. Siphunculus; D. Cauda.

* 1 line = $\frac{1}{12}$ inch = 2.12 mm.

The Catalogue adds wing venation details and indicates six balsam mounts. Only two slides exist bearing the name *abietina* in Walker's hand (H.D. 217, 273), and on one of these the name *abietis* has been deleted and *abietina* substituted. Four other slides containing this species, but labelled *abietis*, occur in the B.M. and Hope Department collections. It may be assumed that these together make up the six slides indicated, and that Walker omitted to alter all his labels. All the slides contain *Elatobium abietinum* (Walker).

LECTOTYPE. Alate viviparous female. 'Abietina. Spruce fir. Southgate. May 6—[18]48.'

H.D. 273. Fig. 1.

Colour: head and antennae, thorax, siphunculi and tibiae brown. Tibial apices, tarsi, and areas round ocelli darker. Femora and cauda slightly paler. Abdomen pale with scattered darker muscle plates. *Morphology*: body length: 2.20 mm. Head rather narrow, smooth. Length of whole antenna: 1.47 mm.: third joint 0.42 mm. long, with 14 and 15 secondary rhinaria; fourth joint 0.33 mm., with 7 and 5; fifth joint 0.25 mm., with 2 and 0; base of sixth 0.16, processus 0.18 mm. Rostrum not quite reaching second coxae, ultimate joint 0.11 mm. with 4 secondary hairs. First tarsal joints with 3, 3, 3 hairs. Second joint of hind tarsus 0.115 mm. long. Siphunculus 0.52 mm. long, evenly cylindrical, imbricated on apical two-thirds, nearly smooth at base. Cauda 0.22 mm. long, sharply acuminate, with 7 hairs. Length of dorsal abdominal hairs: ± 0.015 mm. Eighth tergite with 4 hairs ± 0.03 mm. long.

Aphis abietis Walker = ***Cinara* (*Cinaropsis*) *pilicornis*** (Hartig)

- 1841 Hartig, T., in Germar, *Zent.*, 3, 369: *Aphis pilicornis*.
- 1843 Kaltenbach, J. H., *Monographie der Familien der Pflanzenläuse (Phytophthires)*, p. 154: *Lachnus pinicola*.
- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 100: *Aphis abietis*.
- 1852 Walker, F., *List. Homopt. Ins. Brit. Mus.*, 4, 956: *Aphis abietis*.
- 1856 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 238: *Lachnus hyalinus*.
- 1881 Buckton, G. B., *Monograph of the British Aphides*, 3, 48: *Lachnus macrocephalus*.
- 1895 Mordvilko, A. K., *Rab. Lab. zool. Kab. Varshava*, 1, 133: *Lachnus flavus*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 394: *Lachnus hyalinus*.
- 1918 Wilson, H. F., and Vickery, R. A., *Trans. Wis. Acad. Sci. Arts Lett.*, 19, 1, 27: *Lachnus abietis*.
- 1919 Jackson, D. J., *Scot. Nat.*, 93, 94, 165: *Lachniella pinicola*.
- 1921 Swain, A. F., *Ent. News*, 32, 213: *Dilachnus hyalinus*.
- 1925 Davidson, J., *A List of British Aphides*, 2: *Dilachnus hyalinus* (?).
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 129: *Neochmosis (Panimerus) pinicola*; 152: *Neochmosis (Panimerus) hyalinus*; 352: *Neochmosis abietis*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 568: *Cinara pinicola*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 72: *Neochmosis hyalinus*; p. 72: *Neochmosis abietis*; p. 72: *Cinaropsis pinicola*.
- 1952 Börner, C., *Mitt. Thüring. Bot. Ges.*, Beiheft 3, 43: *Cinaropsis pilicornis*.
- 1954 Pašek, V., *Vošky Našich Lesných Drevín* (Homoptera-Aphidoidea), p. 207: *Cinara* (*Cinaropsis*) *pilicornis*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 55: *Cinaropsis pilicornis*.

Walker, who believed this species to be new, described it (1848) as follows:

'The viviparous wingless female. The body is oval, pale red, and hairy: the feelers are pale brown, filiform, and nearly as long as one-fourth of the body; the fourth joint is less than

half the length of the third; the fifth is much longer than the fourth; the sixth is as long as the fourth; the seventh is extremely short: the eyes are dark brown: the mouth is reddish brown, at least two-thirds of the length of the body, and reaches far beyond the hind-hips: the nectaries are dark, and like tubercles: the legs are dull reddish brown, hairy, and moderately long; the feet and the tips of the shanks are brown; the feet and the shanks are slightly curved, and the latter are very hairy.

The viviparous winged female. It resembles the preceding form in colour and shape, but the head and the disc of the chest are brown: the feelers are less than half the length of the body: the wings are colourless and moderately long; the veins and the brands are brown; the rib-vein begins to widen into the brand before half the length of the wing; the brand is long and narrow, and the angle which it forms at its tip is very obtuse; the first, the second, and the fourth veins are nearly straight, and the two former are near each other at the base, but far apart at their tips; the third vein is indistinct and extremely slender, and obsolete at its source. While a pupa it is pale whitish red: the head is dark red: the limbs are very pale red: the feelers and the mouth have brown tips, and the former are hardly one-third of the length of the body: the eyes are black: the nectaries are dark red: the feet and the tips of the shanks are brown.

1st var. The body is tawny and covered with white powder: the disc of the head and that of the chest are dark brown: the limbs are tawny: the feelers are as long as one-third of the body: the eyes are black and prominent: the abdomen is paler beneath: the nectaries are brown: the feet and the tips of the shanks are brown: the wing-ribs, the brands, and the veins are tawny.

The winged male. The body is dark brown: the feelers are brown, yellow at the base, and more than half the length of the body: the eyes are black: the mouth is yellow with a brown tip and nearly as long as the body: the legs are yellow and stout; the knees, the feet, and the tips of the shanks are black: the wings are very much longer than the body.

Length of the body $1\frac{1}{2}$ –2 lines; of the wings 2– $3\frac{1}{2}$ lines.

Found on *Abies excelsa*, the spruce fir, with the female in the summer and autumn.'

The Catalogue (p. 956) adds the following details:

'*The viviparous wingless female.* Elliptical, slightly convex, somewhat powdered with white, with cross rows of little black dots on the sutures between the segments: feelers pale yellow, slightly hairy, hardly more than one-fifth of the length of the body; tips brown: mouth with a black tip: front convex: sides of the fore-chest slightly notched.

The viviparous winged female. Feelers about one-third of the length of the body: angle near the tip of the wing-brand more obtuse than that of *A. Pinicola*, but less so than that of *A. Pini*, or of *A. Pineti*; fourth vein nearly straight; third vein obsolete near its source, forked before one-third, and again before two-thirds of its length; angles formed by these forks very acute; tip of the second fork very near the tip of the fourth vein; first and second veins almost straight, near each other at the base, very far apart at the tips.

The winged male. Darker, much smaller, and more slender than the female, and has a broader head: feelers about half the length of the body.'

The Catalogue indicates no specimens. Seven original balsam mounts exist, labelled *abietis* by Walker, together with two specimens over the same name in the Dry Collection, mounted by Laing. The slides contain the following species: *Cinara* (*Cinaropsis*) *pilicornis* (Hartig) (B.M. 4, 7, H.D. 257), *Cinara pinea* (Mordvilko) (B.M. 3), *Cinara* (*Cinaropsis*) *bogdanowi* (Mordvilko)? (B.M. 7), and *Elatobium abietinum* (Walker) (B.M. 5, 6, 1162, H.D. 8, 298). It is clear that the specimens of *E. abietinum* do not belong here: they do not fit Walker's description of *abietis*, and there is evidence (see *abietina*) that he had neglected to alter the labels. The other three species could conceivably fit his description. We can, however, eliminate

pineae on the grounds that Walker certainly knew this species (all his material labelled *pini* (i.e. *pineae*) is correctly determined), and that the only specimen of *pineae* labelled *abietis* comes from the Dry Collection where a misplacement may have occurred (unless this specimen represents his '1st var.' of the alate female). Furthermore, *bogdanowi* is represented among the *abietis* material only by a single alata of doubtful identity, while *pilicornis* occurs three times, twice on Walker slides and once in the Dry Collection. It is probable therefore that Walker had *pilicornis* before him when he described *abietis*. The fact that he distinguished between *abietis* and *pilicornis*—i.e. *pinicola* Kaltenbach of Walker—in the Catalogue (p. 955) does not disprove this, as his specimens and description of the latter species seem to apply to *pini* L. *sensu* H.R.L. (1948, pp. 274–5). This assumption is supported by the fact that five Walker slides labelled with the manuscript name *fulva* (q.v.) contain *pilicornis*, and on the label of another slide (H.D. 257) containing this species Walker had substituted *abietis* for *fulva*. His description of *abietis* agrees reasonably well with *pilicornis*, and the forms described are all covered by existing specimens mounted by Walker. An alate viviparous female has been marked lectotype (B.M. 7).

Aphis abrotani Walker = ***Macrosiphoniella abrotani*** (Walker)

- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1035: *Aphis abrotani*.
 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 171: *Macrosiphoniella pulvera* partim.
 1929 Mordvilko, A. K., *Works appl. Ent.*, 14, 83: *Macrosiphoniella pulvera* partim.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 631: *Macrosiphoniella pulvera* partim.
 1938 Hille Ris Lambers, D., *Temminckia*, 3, 9: *Macrosiphoniella abrotani*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphoniella abrotani*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 168: *Macrosiphoniella abrotani*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 250: *Macrosiphoniella abrotani*.

'*Pallida; thoracis discus niger; alae limpidae.*

Pale; disk of the chest dark: feelers, nectaries, and legs of moderate length: wings colourless; distance between the first and second veins at the base half of that between them at the tips; third much nearer to the second at the base than at the tip, as near to the second at the base as the second is to the first; first fork hardly nearer to the second fork than to the third vein, very much nearer to the third vein than the third is to the second; second fork as near to the fourth vein as to the first fork; fourth vein curved near the base, almost straight towards the tip, farther from the tip of the rib-vein than from the second fork.'

No specimens are indicated in the Catalogue. There exist one specimen mounted by Walker and labelled 'Aphis abr.' together with three specimens from the Dry Collection over the name *abrotani* and mounted by Laing. All are correctly named. That mounted and named by Walker is regarded as the holotype.

HOLOTYPE. Apterous viviparous female. 'Aphis abr. Southernwood. Aug. 31—[18]48.'

B.M. 18. Fig. 2.

Colour: head and body pale; antennal joints I and II dusky brown, III with pale base gradually darkening to almost black at apex, remainder of flagellum almost black. Apex of rostrum dark brown. Femora pale at base to dark brown at apex. Tibiae dark brown at base and apex, slightly paler between. Tarsi dark brown. Siphunculi dusky brown over reticulated area, paler at base. Cauda evenly dusky brown. *Morphology*: body length: 2.03 mm. Head smooth, lateral frontal prominences weakly developed; cephalic hairs 0.07 mm. long, slender, with slightly expanded apices. Antennae incomplete. Third joint 0.50 mm. long with 4 rather

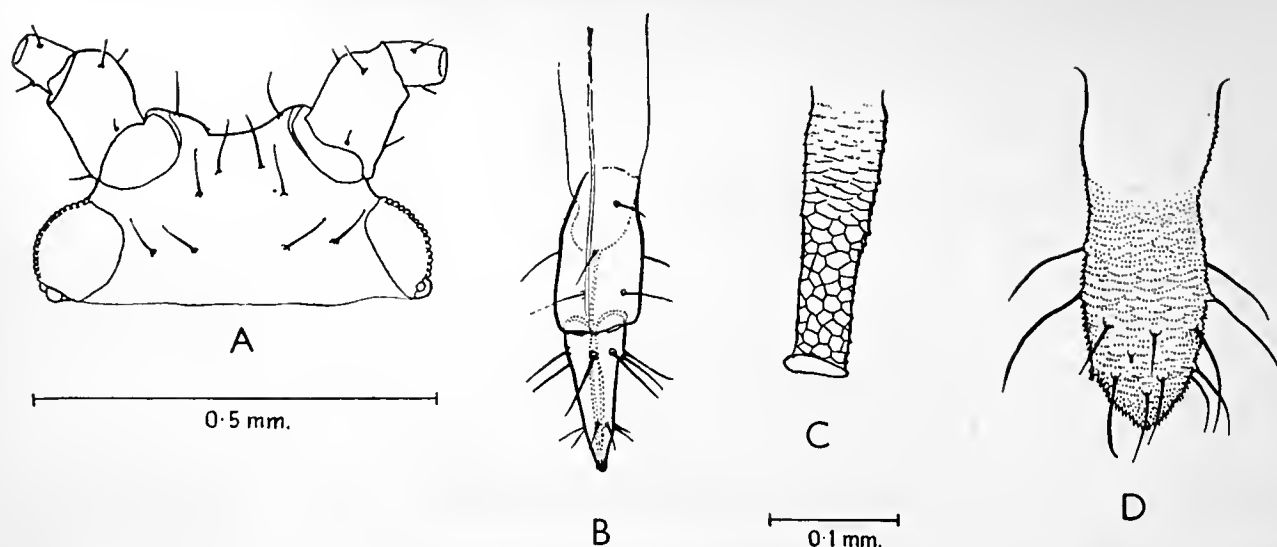


Figure 2. *Macrosiphoniella abrotani* (Walker), holotype, apterous viviparous female, B.M. 18. A. Head; B. Apex of rostrum; C. Siphunculus; D. Cauda.

small round secondary rhinaria near the base, apical two-thirds imbricated, hairs up to 0.04 mm., basal diameter 0.027 mm.; fourth joint 0.48 mm., evenly imbricated; fifth joint 0.42 mm.; base of sixth 0.17 mm., remainder missing. Rostrum reaching nearly to third coxae, ultimate joint elongate-conical, 0.12 mm. long, with 6 secondary hairs. First tarsal joints with 3, 3, 3 hairs; second joint of hind tarsus 0.17 mm. long. Hairs on tergum ± 0.06 mm., slender with scarcely expanded apices; eighth tergite with 7 hairs. Siphunculi tapering from base to apex, 0.23 mm. long, reticulated on apical 0.15 mm. Cauda 0.28 mm. long, digitiform, with a scarcely perceptible constriction about one-third of its length from the base and with 14 hairs.

Aphis acericola Walker = ***Periphyllus aceris acericola*** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 451: *Aphis acericola*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 951: *Aphis acericola*.
 1940 Börner, C., *Neue Blattläuse aus Mitteleuropa*, Selbstverlag., p. 2: *Chaetophoria acericola*.
 1947 Hille Ris Lambers, D., *Tijdschr. Ent.*, 88, 236: *Periphyllus aceris acericola*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 50: *Chaetophoria acericola*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 65: *Chaetophoria acericola*.

Originally described as follows:

'The viviparous winged female. Found on the sycamore at the end of May and in the beginning of June. The body is black, and rather long: the fore-border and the hind-border of the fore-chest are green: the abdomen is grass-green, and has a row of black spots on each side; the disk of its back is black, but traversed by narrow green bands: the nectaries are black, and about one-fifteenth of the length of the body: the legs are pale yellow, and moderately long; the feet are darker: the wings are colourless, and much longer than the body; the wing-ribs are pale yellow; the wing-brands are black; the veins are black. In other characters it resembles *Aphis Aceris*.

Length of the body $1\frac{1}{2}$ line; of the wings 4 lines.'

The Catalogue indicates two specimens: 'a. England' and 'b. Interlaken, Switzerland',

both presented by Walker. There exist three alate viviparous females of *acericola* Walker, mounted by Laing from the Dry Collection (B.M. 27, 28, 29). They are well preserved, except that all have incomplete antennae.

LECTOTYPE. Alate viviparous female. 'Aphis acericola.' From Dry Collection.

B.M. 29.

Colour: head, thorax, abdominal sclerites, siphunculi, and cauda dark brown; antennae, except joints I and II, pale; legs pale, except apices of tibiae, all tarsi, and distal parts of hind femora, which are slightly darkened. *Morphology*: body length: 3.15 mm. Right antenna incomplete, left missing: third joint 0.68 mm. long, with 11 secondary rhinaria more or less in line on the basal two-thirds of posterior border; and 16 hairs, mostly confined to the anterior border; length of the longest measurable hair: 0.25 mm. Cephalic hairs ± 0.25 mm. long. Ultimate rostral joint 0.14 mm. long, broad, bluntly conical, with 2 secondary hairs. Siphunculi 0.21 mm. long, reticulated on distal two-thirds. Caudal width at base 0.25 mm., length ± 0.10 mm. Second joint of hind tarsus 0.20 mm. long. Sclerites on abdominal tergites III-VII partially fused. Abdominal hairs up to 0.40 mm.

Characters of contained larvae are not possible to distinguish.

Aphis acerina Walker = ***Drepanosiphum acerinum*** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 254: *Aphis acerina*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 935: *Aphis acerina*.
- 1855 Koch, C. L., *Die Pflanzenläuse Aphiden, etc.*, p. 202: *Drepanosiphum aceris*.
- 1875 Buckton, G. B., *Monograph of the British Aphides*, 1, 185: *Drepanosiphum acerina*.
- 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 237: *Drepanosiphum acerinum*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 280: *Drepanosiphum acerinum*.
- 1917 Theobald, F. V., *Entomologist*, 50, 77: *Drepanosiphum acerina*.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 388: *Drepanosiphum acerina*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 70: *Drepanosiphum acerina*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 59: *Drepanosiphum acerinus*.
- 1954 Quednau, W., *Mitt. biol. ZentAnst. Berl.*, 78, 24: *Drepanosiphum acerinus*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 81: *Drepanosiphum acerinus*.

Originally described as follows:

'I observed this insect near London from the beginning of July till the end of October 1847, feeding on the leaves of two young sycamore-trees (*Acer Pseudo-platanus*) that were about five feet high, and were situate a mile apart from each other, one in a garden, the other in a wood. It is a very lively, active and elegant species.

The viviparous winged female. Its body is of bright lemon-colour: the feelers are yellow, and very much longer than the body; the tips of their joints are brown; the third joint is very long; the fourth is a little shorter than the third; the fifth is a little shorter than the fourth, and very slightly dilated at the tip; the sixth is spindle-shaped, and from one-fifth to one-sixth of the length of the fifth; the seventh is longer than the fifth: the mouth is pale yellow; its tip is brown: the eyes are red: the disc of the chest and that of the breast are brown; the sides of the chest are pale brown: there are two dark brown bands across the middle of the disc of the abdomen, and two dots of the same colour between the hindermost band and the nectaries; these are brown, and more than one-fourth of the length of the body, and at the base

of each there is a small black spot: the legs are yellow and slender; the fore-thighs and the hind-thighs are shaded with brown; the knees and the tips of the feet are black; each fore-thigh has a very slight tooth on the inner side of its tip: the wings are colourless, and much longer than the body; the wing-brands are very pale; the veins are buff, and in form are alike to those of *A. Platanoidis*.

1st variety. The feelers are nearly twice the length of the body.

2nd var. The seventh joint of the feelers is not longer than the fifth.

The number of young in the body does not usually amount to twelve; they are occasionally more numerous, but in that case some of them are extremely small. This female is the prey of a species of *Aphidius*.

The oviparous wingless female. This is spindle-shaped, and in form much resembles the oviparous *A. Platanoidis*; it occurs from the beginning till the end of October. Its colour is buff or yellow; the tips of the joints and the feelers, the tip of the mouth, the lobes of the chest, the tips of the nectaries, the knees, and the feet are brown; there are also five or six interrupted brown bands across the abdomen, increasing in distinctness till the last, which is usually entire: the eyes are dark red.

1st variety. The tips of the joints of the feelers, the knees and the feet are black.

The winged male. Much resembles the winged female, but is somewhat darker; it pairs with the oviparous female before the end of October.

Length of the body $1\frac{1}{2}$ line; of the wings 3 lines.'

The Catalogue adds wing venation details and indicates four slides. There now exist 14 slides of *acerina*, all correctly named by Walker (B.M. 30-35, 1163, H.D. 72, 157-160, N.M.I. 76, 77).

LECTOTYPE. Alate viviparous female. 'Acerina. Sycamore. Southgate. Aug. 7—[18]47.'

B.M. 30. Fig. 3.



Figure 3. *Drepanosiphum acerinum* (Walker), lectotype, alate viviparous female, B.M. 30. Siphunculus.

Colour: head, antennae, and prothorax pale. Pterothorax brown. Abdomen pale with a broad dark transverse band between the siphunculi and a narrower dark band on the tergite next in front (not clearly visible in this specimen). A more or less triangular, very dark patch laterally at the base of each siphunculus. Siphunculi dusky, distinctly darker than body,

with darker apices. Cauda pale. Legs uniformly pale, tarsi slightly dusky. On the fore tibiae a dark spot on the knee. *Morphology*: body length: 2.10 mm. Head with well-developed lateral frontal prominences, conspicuous median ocellus, and strongly protruding compound eyes. Cephalic hairs 0.05 mm., fine, acute. Length of whole antenna: 4.69 mm. Third antennal joint 1.30 mm. long, slender, tapering from base to apex, with 10 and 13 broadly oval secondary rhinaria in a line along the basal two-fifths; basal diameter 0.034 mm.; antennal hairs fine, acute, ± 0.017 mm.; fourth joint 1.03 mm., fifth 0.87 mm., sixth 0.15 + 1.12 mm. Ultimate rostral joint 0.11 mm. long, bluntly conical, with 5 (?) secondary hairs. Femora long and slender, those of the fore legs slightly flared at the distal end; second joint of hind tarsus 0.15 mm. Abdominal hairs fine, acute, 0.07–0.10 mm. Siphunculus 0.67 mm. long, thick, with the outer margin nearly straight, the inner margin slightly sinuate (fig. 3), smooth at the base, the apical half with faint transverse imbrications becoming more pronounced towards the apex, which is strongly constricted behind the flange. Cauda 0.11 mm. long, with broad semicircular base and subspherical apical knob, with 5 hairs.

Aphis addita = ***Aphis fabae*** Scopoli

1849 *Zoologist* 7, app. xxxiii.

1852 *List Homopt. Ins. Brit. Mus.* 4, 1017.

Originally recorded from *Malva sylvestris*, without date or locality, and described as follows:

'*The wingless viviparous female*. When very young the body is dark green, slightly powdered with white: the limbs are still darker: the tubes are one-twelfth of the length of the body. When full-grown it is small, nearly elliptical, slightly convex, greenish black, except towards the tip of the abdomen, which is dull green: the antennae are dull yellow, brown at the base and at the tips, and much shorter than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are black and about one-sixth of the length of the body: the legs are dull yellow; the tarsi and the tips of the shanks are black.

The winged viviparous female. While a pupa it is greenish black: the head and the fore-chest are dull green: there are four rows of white spots on the abdomen. The winged *Aphis* is small, black, and shining: the abdomen is much broader than the chest and is sometimes metallic brown: the antennae are more or less shorter than the body: the rostrum is pale yellow with a brown or black tip: the tubes are about one-sixth or one-eighth of the length of the body: the legs are yellow or pale yellow; the four hinder thighs excepting the base, the knees, the tarsi, and the tips of the tibiae are black: the wings are colourless and very much longer than the body: the squamulae and the costal veins are pale yellow; the stigmata are buff or pale brown; the other veins are brown; the second fork of the third branch-vein is sometimes wanting.'

No specimens are enumerated in the Catalogue, and no material named *addita* has been found. Walker's description certainly suggests that he had before him *Aphis fabae* Scopoli, as Börner supposed, and that opinion is followed here.

Aphis adducta Walker = ***Aphis fabae*** Scopoli

1849 *Zoologist* 7, app. xxxiv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1017.

Originally described as follows:

'*The wingless oviparous female*. The body is small, oval, convex, black: the antennae are white with black tips, and shorter than the body: the tubes are about one-twelfth of the length of

the body: the four anterior legs are white, excepting the knees, the tarsi, and the tips of the tibiae, which, like the hind legs, are black. It lays its eggs on the lime-twigs at the end of October.

The winged male? The body is black: the borders of the fore chest, the fore breast and the abdomen are yellowish brown; the latter has a black stripe: the thighs are yellow at the base; the shanks are very dark yellow with black tips.

Found with the preceding.' (i.e. *Aphis addita*.)

Walker gives the host plant as *Tilia rubra*. No specimens are indicated in the Catalogue, and the only source material consists of three specimens mounted by Laing from the Dry Collection over the name *Aphis adducta*. These are oviparae of *Aphis fabae* Scopoli, and as Walker's description of the ovipara of *adducta* agrees well with them, they are assumed to be his types. The association of this species with *Tilia* is almost certainly erroneous: the final sentence, 'found with the preceding', suggests the possibility that these specimens may have formed part of the sample collected from *Malva* (see *Aphis addita*).

One of the three specimens has been marked lectotype of *adducta* Walker (B.M. 65).

Aphis adjecta Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1023.

Originally recorded from *Cynoglossum officinale*, without date or locality, and described as follows:

'*The wingless viviparous female*. The body is oval, small, smooth, shining, pale yellowish green: the antennae are pale yellow, black towards the tips, and about half the length of the body: the rostrum is also pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-twelfth of the length of the body: the legs are pale yellow; the tarsi are black; the tips of the tibiae are brown.'

Although the Catalogue indicates a single dry specimen ('a. England'), no material named *adjecta* has come to light. It is possible, however, that one of the specimens belonging to the *Cynoglossum* Group (p. 52) may represent this species. A specimen of *Brachycaudus helichrysi* from that sample, and otherwise unaccounted for, would fit the description, and is here regarded as the type of *adjecta* (B.M. 284).

Aphis adjuta Walker = ***Macrosiphum (Sitobion) avenae*** (Fabricius)

1848 *Zoologist*, 6, 2220.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Originally recorded from *Lycopsis arvensis* and described as follows:

'*The winged viviparous female*. This, while a pupa, is dull red, elliptical, rather flat and of moderate size: the head and the rudimentary wings are greenish: the antennae are black, dark red towards the base, and a little longer than the body: the rostrum is dull yellow, with a black tip: the eyes are dark red: the tubes are black and about one-sixth of the length of the body: the legs are dull yellow and rather long; the tarsi, and the tips of the thighs and of the tibiae, are black.'

The Catalogue indicates a single dry specimen. Although no specimen named *adjuta* has been found in the collections, an examination of the specimens said to have been collected from *Lycopsis* has revealed three nymphs to which Walker's description of *adjuta* could be applied (see *Lycopsis* Group, p. 98). These are *Macrosiphum (Sitobion) avenae* Fabricius. In one of them the male genitalia are visible. One of the two females has been marked type of *adjuta* Walker (B.M. 532).

Aphis adjuvans Walker = ***Aspidaphis adjuvans*** (Walker)

- 1848 Walker, F., *Zoologist*, **6**, 2220: *Aphis adjuvans*; 2249: *Aphis polygoni*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1013: *Aphis adjuvans*; 1015: *Aphis polygoni*.
 1907 Schouteden, H., *Tijdschr. Ent.*, **50**, 265: *Sipha polygoni*.
 1921 Laing, F., *Ent. mon. Mag.*, **57**, 125: *Aspidaphis adjuvans*.
 1925 Davidson, J., *A List of British Aphides*, p. 4: *Aspidaphis adjuvans*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **2**, 310: *Aspidaphis adjuvans*.
 1931 Hille Ris Lambers, D., *Mem. Mus. Stor. nat. Venez. trident.*, **1**, 2, 4: *Aspidaphis polygoni*.
 1932 Gillette, C. P., and Palmer, M. A., *Ann. ent. Soc. Amer.*, **25**, 457: *Aspidaphis adjuvans*.
 1938 Patch, E. M., *Bull. Me Agric. Exp. Sta.*, **393**, 111, 208, 331: *Aspidaphis adjuvans*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 69: *Aspidaphis adjuvans*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 109: *Aspidaphis polygoni*.
 1952 Palmer, M. A., *Aphids of the Rocky Mountain Region*, p. 188: *Aspidaphis adjuvans*.
 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 286: *Aspidaphis adjuvans*.

Described, together with a number of other species, under the heading 'Aphides on the Small Bugloss (*Lycopsis arvensis*)' as follows:

'The oviparous wingless female. The body is granulated, elliptical, buff, tinged with red, and is narrower and longer than that of the preceding species: the head is crenulate or dentate in front, and there are two little black dots between the eyes: the antennae are pale yellow, with black tips, and about one-fourth of the length of the body: the legs are pale yellow; the hind-tibiae are brown.'

The Catalogue lists four dry specimens, but no material named *adjuvans* by Walker himself has been found in the collections. Nevertheless, among the specimens in the Dry Collection believed to have been collected from *Lycopsis arvensis* (see *Lycopsis* Group, p. 98) were four oviparae, two named *lycopsidis* and two *consueta* (both of them species described from *Lycopsis*) which are a species of *Aspidaphis* associated with *Polygonum*. They are identical with specimens named *polygoni*, a species Walker recorded from *Polygonum aviculare* and described later in the same paper (p. 2249). Walker's brief descriptions both of *adjuvans* and *polygoni* agree so far as they go with these specimens, while his descriptions of *lycopsidis* and *consueta* clearly do not. It seems reasonable to assume therefore that these four oviparae are the specimens indicated in the Catalogue.

Laing (1921) redescribed *adjuvans* (placing it in *Aspidaphis* Gillette and Palmer) on the basis of 'an examination of Walker's *Aphis adjuvans* and *Aphis polygoni* . . .' which suggests that material of the former species was available then. Either this material has since been lost, or, which is more likely, Laing based his opinion on the specimens named *lycopsidis*. This view is supported by the legend on Laing's slide which reads: 'Mounted from carded material in General Collection of B.M. placed under name of "*A. lycopsidis*" Walker. England. (=Walker's *A. adjuvans*.)'

Börner (1952) named the species *Aspidaphis polygoni* (Walker), arguing that Walker's statement that he had taken it on *Lycopsis* must have been erroneous, and therefore the name *polygoni*, from the same issue of the same publication, should be given priority. But as we know now that many of the species recorded by Walker as from a certain host may be represented by a mixed assortment of specimens, some of which are never associated with that host in nature, Börner's argument may be disregarded. In the writer's opinion there is no doubt that Walker's descriptions of *adjuvans* and *polygoni* both refer to the same species, and as *adjuvans* has page priority it should therefore take precedence.

One of the two oviparae originally named *lycopsidis* has been selected as type of *adjuvans*.

LECTOTYPE. Oviparous female. 'Aphis lycopsidis.' From Dry Collection.

B.M. 533. Fig. 4.

(The specimen has been macerated and lightly stained: natural colour characters are therefore not easy to determine and are omitted.) Body spindle shaped, 1.95 mm. long,

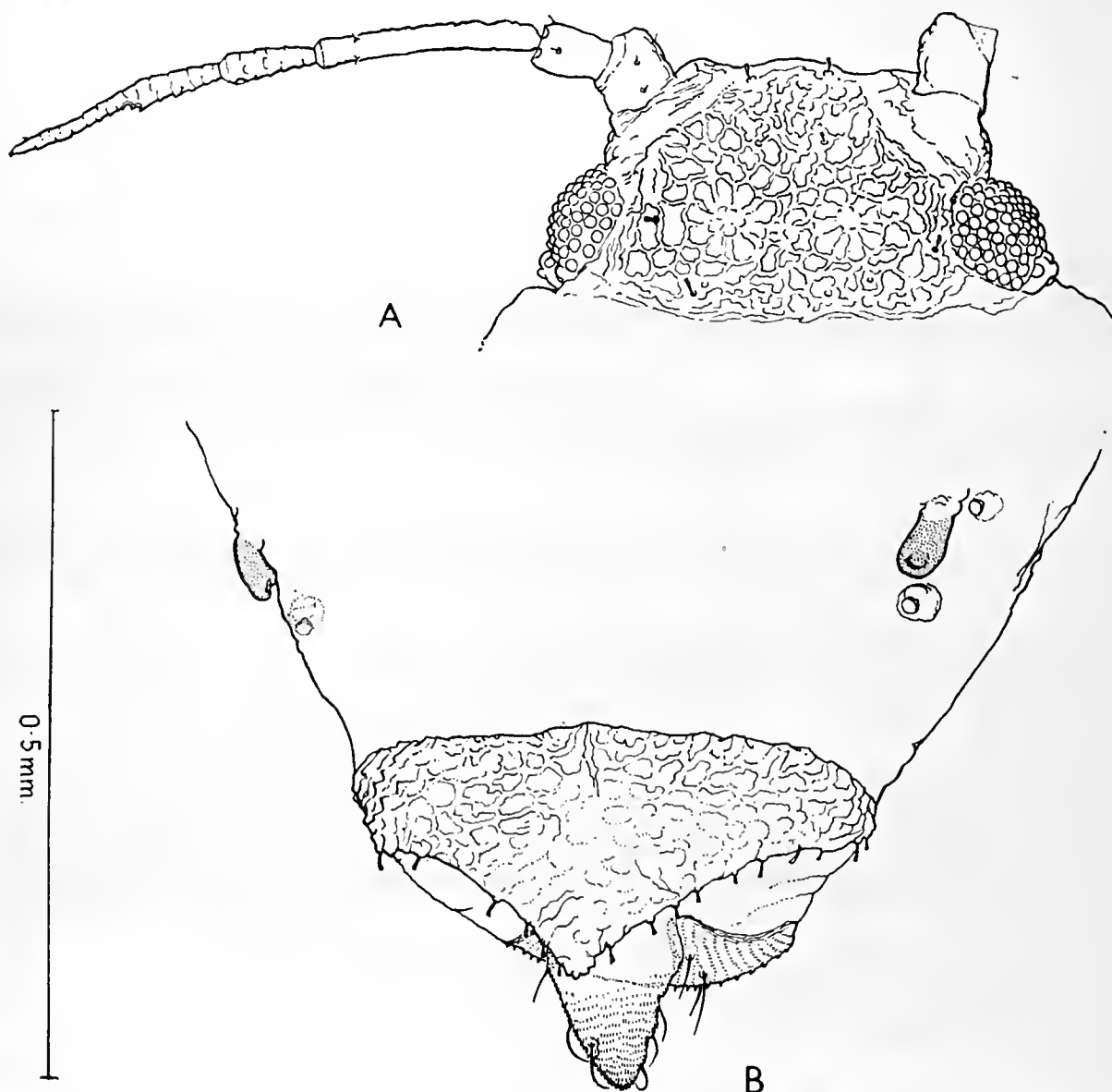


Figure 4. *Aspidaphis adjuvans* (Walker), lectotype, oviparous female, B.M. 533.
A. Head and antenna; B. Apex of abdomen.

cuticle irregularly rugose. Head narrow, eyes small, frons nearly straight. Cephalic hairs sparse, short (0.01 mm.), acute. Antennae short (0.54 mm.), of 5 joints, almost hairless: III: 0.16, IV: 0.09, V: 0.08 + 0.085 mm., without secondary rhinaria. First joint much wider than the second; third very strongly constricted at the base so that the articular diameter (0.011 mm.) is only half that of the remainder of the joint; fourth tapering from apex to base. Rostrum short, scarcely reaching second coxae; ultimate joint short (0.06 mm.), tapering evenly to broadly rounded apex. Legs short and stout, with few hairs; first tarsal joints of fore and

mid legs with 2 hairs and short sensilla, of hind legs with 2 hairs. Second tarsal joints cylindrical, slightly curved, 0.11 mm.; hind tibiae swollen, with numerous pseudorhinaria over most of their length. Tergum with short (0.01 mm.) hairs, the apices of which are expanded and appear slightly fan-shaped, arranged with one spinal, one pleural, and one marginal pair per tergite. Ventral hairs acute, more numerous. Siphunculi very short (0.055 mm.), finger-shaped, with a rounded apex, the orifice appearing as a semicircular slit. Cauda conical with a slight but distinct basal constriction (0.13 mm.) and 6 lateral hairs. Eighth tergite more heavily sclerotized and rugose than the rest of the tergum, broadly triangular, with its apex projecting over the base of the cauda, and 17 stout apically-expanded hairs on its posterior margin.

Aphis adscita Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1848 *Zoologist*, 6, 2220.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1013.

The alate and apterous viviparous females are described as follows under the heading 'Aphides on the Small Bugloss (*Lycopsis arvensis*)':

'The wingless viviparous female. The body is grass-green, small, oval, and rather flat: the antennae are black and nearly as long as the body: the eyes are dark red: the rostrum is dull yellow, with a black tip: the tubes are black and about one-tenth of the length of the body: the legs are dull yellow; the knees, the tarsi and the tips of the tibiae are black.

The winged viviparous female. The body is black: the abdomen is very dark green, and sometimes black above: the antennae are as long as the body: the rostrum is dull yellow, with a black tip: the tubes are black: the legs are dull yellow; the tarsi, and the tips of the thighs and of the tibiae, are black: the wings are colourless; the costal veins are yellow; the stigmata and the other veins are brown.'

The Catalogue indicates three dry specimens, and adds details of wing venation used to separate three varieties.

No specimens named *adscita* have been found in the collections, but among those said to have been taken from *Lycopsis* are two alatae—one viviparous female and one male of *Brachycaudus helichrysi* (Kaltenbach)—placed over the name *suffragans* which agree with Walker's description of the alate *adscita*. A comparison of the wing venation of these two with the notes in the Catalogue shows agreement also between the viviparous female and Walker's main species, and between the male and his first variety. (There is no specimen to represent his second variety, of which he says only 'second fork very short'.) As both specimens in fact show much better agreement with the descriptions of *adscita* than they do with that of *suffragans*, it is proposed to select the alate viviparous female as type of *adscita* Walker (B.M. 962), which thus becomes a synonym of *Brachycaudus helichrysi* (Kaltenbach).

The identity of the apterous viviparous female of *adscita* cannot be certainly established. Of the specimens from *Lycopsis*, the description could perhaps apply to one of a number of larvae of *Sitobion avenae* (Fabricius), put in the collection over the name *consueta* and mounted by Laing (B.M. 238). But as there are reasonable grounds for the establishment of the type of *adscita* by means of the alata, the identity of the aptera is of less importance.

Aphis advena Walker = ***Aphis fabae*** Scopoli

1849 *Zoologist*, 7, app. xlviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1024.

Described under the heading 'Aphides on the Elder (*Sambucus nigra*)' as follows:

'The body is small and black: the borders and the under-side of the prothorax are dull yellow: the abdomen is dull orange: the antennae are black, thick till near their tips, and shorter than

the body: the rostrum is dull yellow, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are yellow; the tarsi, the tips of the thighs and of the tibiae, and nearly the whole of the hind thighs, are black: the wings are colourless; the squamulae are pale yellow; the stigmata and the veins are brown.

End of November.'

No specimens are enumerated in the Catalogue and no material named *advena* has been found. However, an alate viviparous female of *Aphis fabae* Scopoli (Group), unnamed but labelled 'Sambucus. Autumn.' and mounted from the Dry Collection, agrees with Walker's description and is presumed to be the type of *advena*. (B.M. 66.) (See also *exul*.)

Jacob (1949, p. 90) stated: '*A. advena* is possibly a male of *A. sambuci* but this is questionable.' Börner's opinion (1952, p. 73) that *advena* is an ovipara of *sambuci* is clearly absurd, since the form described is alate.

Schizoneura albipennis Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.* 4, 1051.

'*Nigra; alae albae, stigmata nigrofusco sublineari, venis albis.*

Black, thick, rather broad: feelers shorter than the body: wings white; brand dark brown, rather broad, almost linear, forming an obtuse angle at the base of the fourth vein, and an acute angle at the tip; veins white, very indistinct. Length of the body 1 line; of the wings 3 lines.

England.'

The description includes no host plant indication, and no specimens are indicated in the Catalogue. No specimens so named exist in the Collections.

Aphis alterna Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xliii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1021.

One of two species described under the heading 'Aphides on the Willow (*Salix caprea*)' as follows:

'*The winged viviparous female.* The body is small and black: the abdomen is rather dark green: the antennae are almost filiform and much shorter than the body: the rostrum is a little paler towards the base: the tubes are dark green, with black tips, and full one-fifth of the length of the body: the wings are colourless and very much longer than the body; the squamulae are yellow; the stigmata and the veins are brown.'

No reference to specimens is made in the Catalogue and no specimens of this name exist in the Collections.

Pemphigus americanus Walker = ***Prociphilus americanus*** (Walker)

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1057: *Pemphigus americanus*.

1855 Fitch, A., *Traus. N.Y. St. Agric. Soc.*, 14, 711: ? *Pemphigus pyri*.

1858 Walker, F., *List Homopt. Ins. Brit. Mus. Supplement*, 302: *Pemphigus americanus*.

1909 Patch, E. M., *Ent. News*, 20, 319: *Prociphilus venafuscus*.

1911 Essig, E. O., *Pomona Coll. J. Ent.*, 3, 553: *Pemphigus fraxini-dipetalae*.

1912 Patch, E. M., *Bull. Me agric. Exp. Sta.*, 207, 448: *Prociphilus venafuscus*.

1915 Wilson, H. F., *Traus. Amer. ent. Soc.*, 41, 85: *Pemphigus fraxini-dipetalae*.

- 1916 Baker, A. C., *J. agric. Res.*, 5(23), 1119: *Prociphilus venafuscus*.
 1918 Patch, E. M., *Bull. Me agric. Exp. Sta.*, 270, 45: *Prociphilus venafuscus*.
 1919 Swain, A. F., *Univ. Calif. Publ. Ent.* 3(1), 146: *Prociphilus venafuscus*.
 1923 Maxson, A. C., *Bull. Conn. geol. nat. Hist. Surv.*, 34, 323: *Prociphilus venafuscus*.
 1929 Glendenning, R., *Proc. ent. Soc. B.C.*, 26, 57: *Prociphilus fraxini-dipetalae*, *Prociphilus venafuscus*.
 1931 Hottes, F. C., and Frison, T. H., *Bull. Ill. nat. Hist. Surv.*, 19, 373: *Prociphilus venafuscus*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 654: ? *Prociphilus poschingeri*.
 1952 Palmer, M. A., *Aphids of the Rocky Mountain Region*, p. 368: *Prociphilus venafuscus*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 302: *Prociphilus venafuscus*.

Walker's original description of *americanus* is as follows:

'*Nigra, albo lanuginosa; alis subcinereis, stigmatibus et venis nigrofuscis.*

A little smaller and more slender than *P. Bumeliae*; brand darker than that of *P. Xylostei*; distinguished from both species by its darker veins. Black, covered with white cotton-like matter: wings slightly grey; brand and veins dark brown. Length of the body* 1 line; of the wings 4 lines.

a-d. Nova Scotia. From Lieut. Redman's collection.'

The four specimens indicated in the Catalogue, now mounted by Laing from the Dry Collection, still exist. One is complete and well preserved, and is here designated lectotype; the others are more or less fragmentary. (Slide nos. B.M. 86, 87, 88.)

LECTOTYPE. Alate viviparous female (sexupara). '*Pemphigus americanus* Walk. Nova Scotia. Redman.' From Dry Collection.

B.M. 86. Fig. 5.

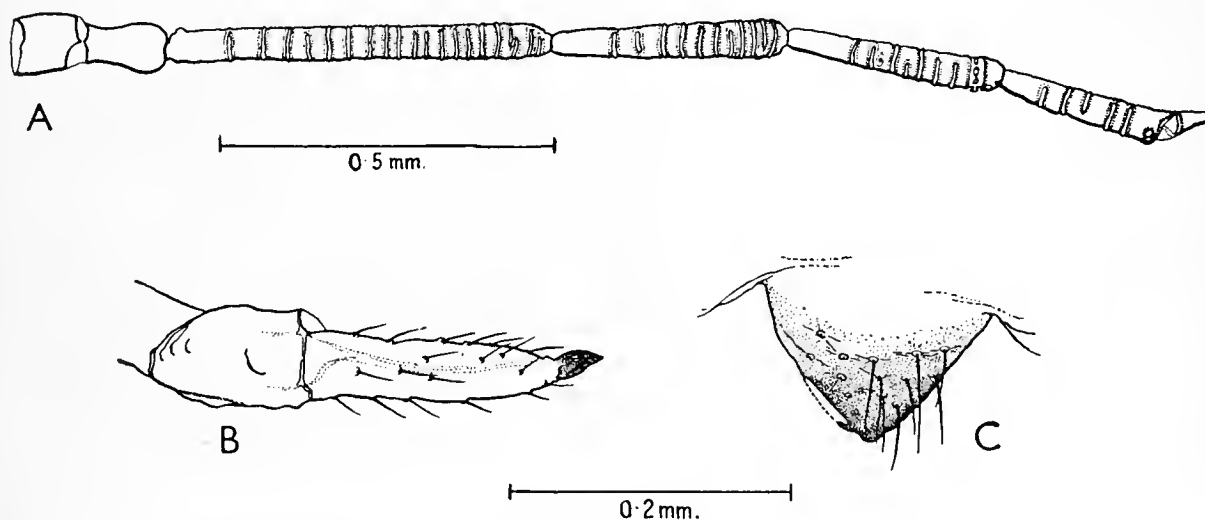


Figure 5. *Prociphilus americanus* (Walker), lectotype, alate viviparous female, B.M. 86.

A. Antenna (hairs omitted); B. Apex of rostrum; C. Cauda.

Colour: head, thorax, and legs evenly dark brown, antennae slightly paler. Rostrum, cauda, stigmal, anal, and subgenital plates light brown. Abdomen colourless. Wings very faintly clouded with brown, becoming darker along margins of veins. *Morphology*: head more or less hemispherical, compound eyes large but not prominent; a pair of small subcircular wax glands just above median ocellus; a second pair, also subcircular and about twice the

diameter of the first, on the vertex. Cephalic hairs fine, sparse ± 0.04 mm. Antennae rather long and slender: III cylindrical with 17 and 19 annular, fringed rhinaria encircling the ventral half of the joint, basal denticle rounded, scarcely protruding; IV broadest at the apex, tapering evenly to a narrow base, with 13 and 11 rhinaria as on III; V very much as IV in shape with 9 and 7 secondary rhinaria in addition to the primary, which is wider and (on the right antenna) contains within it 3 small oval chitinous plates; VI with 4 and 5 secondaries, the primaries large, elongate-oval, each with 1 or 2 very small accessory rhinaria; processus terminalis short and blunt, sparsely spinulose, with about 8 short spiny hairs. Hairs on other antennal joints short ($\pm 12\mu$), fine, acute, fairly numerous on dorsal surfaces. Rostrum only lightly chitinated, ultimate joint slender, basal three-quarters cylindrical, apex slightly tapering with about 30 very fine hairs. Pterothorax without wax glands. A pair of oval, spinal wax glands on metathorax, and on abdominal segments I and VI. Marginal abdominal wax glands very large, subcircular, on segments II-VI. A single transverse elongate gland medially on VII. Cauda bluntly conical with numerous fine hairs, ± 0.05 mm. Subgenital plate broadly rectangular with numerous fine hairs as on cauda. Stigmata small, oval, each set in posterior margin of an oval chitinated stigmal plate. Abdominal hairs fine, acute, ± 0.03 mm., sparse on dorsum, fairly numerous on venter. Legs rather long and slender with short, fine hairs, sparse on femora, numerous on tibiae, becoming denser towards their distinctly expanded apices. First tarsal joints of fore and middle legs with 3 hairs and a sensilla, of hind legs with 3 (?) hairs. Second tarsal joints long, nearly cylindrical, with numerous short hairs. Wings with radial sector curved, nearly straight at its apex; media simple with basal two-fifths obsolete. (Some further measurements of the lectotype are included in the table below.)

The characters of *americanus* agree with the descriptions by Patch (1909) and later authors of *Prociphilus venafuscus*. Walker gives the colour as black, with the wings 'slightly grey; brand and veins dark brown'. Patch's species is described as blue-black, 'the wings smoky and dark with dark veins'. Specimens of *venafuscus* (sexuparae) received from Professor G. F. Knowlton and determined by Professor M. A. Palmer have been compared with the type of *americanus* and have been found to agree with it in all essential particulars. Comparative length measurements (in mm.) and rhinarial numbers are given in the following table:

	Ant.	Ant. joints				Rhinaria				Ult. rostr. jt.	Hind tarsus II
		III	IV	V	VI	III	IV	V	VI		
<i>americanus</i>	1.76	.60	.34	.30	.29	17	13	9+1	3+1	.22	.29
	1.75	.57	.34	.30	.29	19	11	7+1	5+1	—	.30
<i>venafuscus</i> *	1.58	.45	.26	.29	.29	15	9	7+1	2+1	.22	.30
	1.85	.58	.35	.38	.32	19	13	12+1	7+1	.28	.33

* Extremes of five specimens from *Fraxinus* sp., Provo, Utah, U.S.A., leg. G. F. Knowlton, 3 October, 1953.

The form and arrangement of the rhinaria and of the wax plates, the structure of the rostrum, the bluntly conical cauda, and other characters all agree so closely that there can be little doubt that the two species are identical. The name *venafuscus* therefore sinks as a synonym of *americanus*.

It may be noted also that Walker's and Patch's specimens were collected from localities in the same geographical region: Nova Scotia and Maine respectively.

The only positive opinion on the identity of *americanus* Walker to be found in the literature is that of Fitch (1855), who believed it to be his *Pemphigus pyri* (now *Prociphilus fitchii* Baker and Davidson). Walker seemed to be aware of Fitch's opinion when he compiled his supplementary list of aphids (1858), for he there put *pyri* Fitch as a doubtful synonym of *americanus*. Baker (1916), who gave a useful review of American species of *Prociphilus*, regarded *pyri* (*fitchii*) as distinct from *venafuscus* (*americanus*) mainly on the basis of the secondary rhinaria, which lack the regular form and even distribution characteristic of the latter species.

Aphis amica Walker = ***Macrosiphoniella pulvera*** (Walker)

1848 *Zoologist*, 6, 2218.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1011.

This species is one of several described under the heading 'Aphides on Sea Wormwood (*Artemisia maritima*)' as follows:

'*The wingless male*. The body is gray, narrow, linear, very small, and covered with white dust: the abdomen is red, with a row of black dots on each side: the antennae are black and very much longer than the body: the eyes are red: the rostrum is yellow, with a black tip: the tubes are black and nearly one-sixth of the length of the body: the legs are black and very long; the thighs towards the base are pale yellow; the tibiae, except the tips, are yellow.'

The Catalogue lists four specimens. Three now exist, mounted from the Dry Collection on a single slide (B.M. 89). They are apterous males of *Macrosiphoniella pulvera* (Walker).

Aphis apposita Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1850 *Zoologist*, 8, app. ciii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1028.

Described under the heading 'Aphides on the Groundsel (*Senecio vulgaris*)' as follows:

'*The [wingless] viviparous female*. The body is small, narrow, oval, convex, smooth, shining green, whitish towards the head: the antennae are yellow, with black tips, and about half the length of the body: the legs are pale yellow, and of moderate length; the four hinder thighs are dull yellow; the knees, the tarsi, and the tips of the tibiae are black.

The winged viviparous female. While a pupa it resembles the wingless insect in colour; the rudimentary wings are pale green.

At the end of September.'

The Catalogue enumerates no specimens and adds no further description. The collection contains seven specimens, mounted on one slide by Laing, from the Dry Collection over the name *apposita* and with the label 'Senecio vulgaris', apparently not in Walker's hand (B.M. 106). The specimens are:

Brachycaudus helichrysi (Kaltenbach) apt. viv. fem. and nymph;

Brachycaudus cardui (Linnaeus) 3 larvae;

Myzus persicae (Sulzer) apt. viv. fem. and larva.

Walker's description would apply to the first of these, and the fact that he described an aptera and a nymph leaves little doubt that these two specimens represent his types. The adult aptera is therefore fixed as lectotype of *apposita*, which falls as a synonym of *helichrysi* Kaltenbach.

Of the other specimens contained on this slide, the larvae of *cardui* are probably *lata* Walker (q.v.), and the *persicae* doubtless represent '*Aphis dianthi*' described by Walker on the same page as *apposita*.

Aphis ascita Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1045.

Originally described as follows:

'Aptera. *Flavo-viridis*, *ovata*, *convexa*; *antennae corporis paullo longiores*; *cornicula obscura*, *corporis decima non longiores*.

Alata. Thoracis discus nigricans; *alae hyalinae*.

The viviparous wingless female. Yellowish green, oval, convex: front slightly convex: feelers a little longer than the body; fourth joint much shorter than the third; fifth a little shorter than the fourth; sixth shorter than the fifth; seventh longer than the fifth and the sixth: abdomen with a very short style at the tip: nectaries darker than the body, and about one-tenth of its length: legs of moderate length.

The viviparous winged female. Disk of the chest dark: wings colourless; distance between the first and second veins much more than twice farther at the tips than at the base; third much farther from the second at the tip than at the base, much farther from the second at the base than the second is from the first; first fork as near to the third vein as to the second fork, much nearer to the third vein than the third is to the second; second fork nearer to the first fork than to the fourth vein; fourth vein curved, almost straight towards the tip, as far from the second fork as from the tip of the rib-vein. From the leaves of the Melon and the Cucumber. Length of the body $\frac{1}{2}$ line; of the wings $1\frac{1}{2}$ line.

England.'

No specimens are enumerated in the Catalogue and none named *ascita* have been found among Walker's material. The description does not apply to any species now known to feed on Cucurbitaceae, and the identity of the species remains unknown.

Aphis asperulae Walker = ***Myzus cerasi*** (Fabricius) s.l.

1848 *Zoologist*, 6, 2248.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1014.

Originally described, from *Asperula odorata*, as follows:

'*The wingless viviparous female.* The body is reddish brown, pale red beneath, oval, convex, shining, rather broad and shallow: the antennae are brown, slender, setaceous, shorter than the body, dull buff towards the base, which is dark brown: the eyes are dark brown: the rostrum is brown; its base is pale red: there is a rim and a row of impressions on each side of the back: the tubes are brown, and between one-fourth and one-fifth of the length of the body: the legs are pale buff, slender and moderately long; the tarsi and the tips of the tibiae are brown. When young the body is linear and pale red: the head, antennae, rostrum, tubes and legs are somewhat darker.

Near London, in the beginning of May.

The winged viviparous female. While a pupa the body is red: the antennae are pale red and as long as the body; their tips are brown: the tubes are as long as one-fourth of the body; their tips are brown: the legs are pale red and moderately long; the tarsi are brown: the rudimentary wings are pale red. The wings are unfolded in the beginning of June, and the body is then dark reddish brown and shining: the antennae are black and as long as the body: the eyes are black: the rostrum is pale yellow; its tip is brown: the tubes are black, and as long as one-sixth of the body: the legs are long and pale yellow; the hind thighs except the base, the tarsi, and the tips of the thighs and of the tibiae, are brown: the wings are colourless and much longer than the body; the squamulae are pale yellow; the stigmata are dull yellow; the veins are pale brown.

It disappears before the beginning of July.'

The Catalogue adds details of wing venation and indicates two specimens. Two alate viviparous females, named *asperulae* and mounted from the Dry Collection by Laing, agree with the description and are presumably Walker's types. They appear to be *Myzus cerasi* Fabricius. (B.M. 107.)

Aphis assidua Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xl.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1021.

Described with some other species under the heading 'Aphides on the Medlar (*Mespilus germanica*)' as follows:

'The winged viviparous female. The body is green: the disk of the thorax is pale brown: the antennae are black, slender, and shorter than the body: the eyes are dark brown: the rostrum is pale green: the tubes are dark green and about one-fourth of the length of the body: the legs are dull green and moderately long; the thighs are pale green at the base; the tarsi and the tips of the tibiae are brown: the wings are colourless and nearly twice the length of the body; the squamulae and the costal veins are dull pale green; the stigmata are pale brown; the veins are brown.

First var. The body is dark dull red.

Found in the beginning of May.'

The Catalogue indicates no specimens and none named *assidua*, or agreeing with this description and host record, have been found amongst Walker's material. The characters given do not apply to any aphid normally associated with *Mespilus*, and it is probable that Walker was describing a vagrant.

Aphis assueta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xlix.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally described, from *Daucus carota*, as follows:

'The wingless viviparous female. The body is small, yellowish green, elliptical, flat, not shining: the antennae are pale green, and less than half the length of the body: the eyes are dark brown: the rostrum is pale green, with a black tip: the tubes are green, and not more than one-twelfth of the length of the body: the legs are pale green and rather short; the tarsi are darker.'

No specimens are indicated in the Catalogue, and none so named exist in the Collections.

Hille Ris Lambers (1931, p. 7) applied the name *assueta* to an aphid of the *fabae* group found on *Heracleum* and *Daucus*, while Börner (1952, p. 102) regarded *assueta* Walker as a synonym of *Dysaphis crataegi* (Kaltenbach), and *assueta* H.R.L. as a synonym of *Aphis euonymi* Fabricius. Walker's description could hardly apply to a 'black aphid', and, though perhaps more easily applicable to *crataegi*, specifies green siphunculi whereas those of *crataegi* are black, or at least dark in colour.

With no material evidence to support the description, *assueta* is here regarded as a *nomen dubium*.

Aphis asteris Walker = **Macrosiphoniella (Asterobium) asteris** (Walker)

1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 3, 48: *Aphis asteris*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 973: *Aphis asteris*.

- 1919 Laing, F., *Ent. mon. Mag.*, **55**, 272: *Macrosiphoniella asteris*.
 1923 Laing, F., *Ent. mon. Mag.*, **59**, 238: *Macrosiphoniella asteris*.
 1925 Davidson, J., *A List of British Aphides*, p. 10: *Macrosiphoniella asteris*.
 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **1**, 167: *Macrosiphoniella asteris*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 631: *Macrosiphoniella asteris*.
 1934 Hille Ris Lambers, D., *Atti Mus. Stor. nat. Trieste*, **12**, 144: *Macrosiphoniella asteris*.
 1938 Hille Ris Lambers, D., *Temminckia*, **3**, 17: *Macrosiphoniella (Asterobium) asteris*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphoniella (Asterobium) asteris*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 174: *Dactynotus (Uromelan) asteris*.

Originally recorded from *Aster tripolium* near Lancaster, and at Holywood, near Belfast, and described as follows:

'*The viviparous wingless female*. It is oval, slightly convex, dull olive-green, very much tinged with red especially round the border, covered with white beneath and sometimes above: it has a row of impressions on each side of the body, and these are most distinct towards the head: the feelers are black, yellow near the base, and longer than the body: the eyes are dark red: the mouth is dull yellow; its tip is black: the nectaries are black, not curved, and about one-eighth of the length of the body: the legs are long and yellow; the feet and the tips of the shanks and of the thighs are black. When young it is paler and more linear, and sometimes green. Abundant on *Aster tripolium*, on the shore near Lancaster and at Holywood, near Belfast, in the autumn.

1st var. Almost black, especially towards the fore-chest and the head.

The front is slightly concave in the middle, and convex on each side at the base of the feelers, but having no tubercles; there is a very little bristle on each side of the front: the feelers are shorter than the body; the fourth joint is hardly shorter than the third; the fifth is much shorter than the fourth; the sixth is less than half the length of the fifth; the seventh is full thrice the length of the sixth: the back is adorned with six or eight irregular lines of black dots: the tip of the abdomen is compressed, but very short: the fore-legs are not much shorter than the hind-legs; the shanks are very slightly curved.'

The Catalogue indicates four balsam mounts. Five original Walker slides now exist, all containing specimens from the same sample from *Aster tripolium*, Belfast, and dated 1st September, 1847. These specimens comprise apterae viviparae, apterous males, and oviparae.

(Slide data: B.M. 108, 109: apt. viv. females, male, oviparae, larvae; H.D. 29, 317: apt. viv. females, larvae; N.M.I. 9: apt. viv. female, male, larvae.)

LECTOTYPE. Apterous viviparous female. '*Asteris. A. tripolium*. Belfast. Sept. 1—[18]47.'

B.M. 108a. Plate I, A.

Colour: head brown; antennae dark brown, except the second, and the basal half of the third, joints which are paler. Body pale, almost colourless, the abdominal sclerites dark. Siphunculi dark brown, slightly paler over reticulated area. Cauda and anal plate dusky. Coxae and trochanters dark brown; femora light brown, hind femora with nebulous darker areas near apices; tibiae light brown, darker towards apices, very dark at bases; tarsi dark. *Morphology*: body length: 2.81 mm. Head with frons almost straight. Cephalic hairs stout, spiny, 0.04 mm. long. Length of whole antenna: 2.43 mm. Antennal joints: III: 0.55, IV: 0.48, V: 0.41, VI: 0.17 + 0.58 mm. Third joint with 6 rather small round secondary rhinaria on basal half. Antennal hairs 0.025 mm. long. Basal diameter of third joint: 0.035 mm. Rostrum with ultimate joint short (0.13 mm.) and blunt, with 6 (?) secondary hairs (paratypes have from 4 to 8 secondary hairs). Femora and tibiae with sparse, rather short spiny hairs: first

tarsal joints with 3 hairs: length of second joint of hind tarsus: 0.18 mm. Tergum with hairs usually arranged in 1-2 spinal, 1-2 pleural, and 1 marginal pair per segment, the hairs for the most part arising from round or oval discrete scleroites, except on tergite VIII where spinal and pleural scleroites are fused on each side. In this specimen there are 3 instead of the normal 4 hairs on the eighth tergite. Anterior sclerites crescentic, strongly developed. Siphunculi 0.31 mm. long, distinctly swollen towards the base, narrowest in the middle, expanding gradually to the inconspicuous flange; reticulated on distal half, with about 12-15 rows of cells, coarsely imbricated on basal half. Cauda 0.28 mm. long, blunt, finger-shaped, with (in this specimen) no basal constriction, with 7 complete hairs and at least 2 visible hair-bases.

Laing (1919) redescribed *asteris* Walker from new material collected in Essex and placed it in *Macrosiphoniella* del Guercio. At that time he had not seen Walker's material, which he believed to be lost. Later, however, he examined one of the Walker slides in the Hope Collection and confirmed his first diagnosis (Laing, 1923). Theobald determined the specimens in the collections of the National Museum of Ireland as *Macrosiphoniella asteris*, but mentioned only the Hope Collection slide in his description of the species (Theobald, 1926). The two British Museum slides were acquired in 1940 and 1953 respectively.

Hille Ris Lambers (1938) erected the subgenus *Asterobium*, with *asteris* Walker as type, largely on the basis of the *Dactynotus*-like form of the ultimate rostral joint which distinguishes it from the other species of *Macrosiphoniella*. Börner (1952) went further and made *Asterobium* H.R.L. a subdivision ('Gruppe') of the subgenus *Uromelan* Mordvilko of the genus *Dactynotus* Rafinesque on account of the chaetotaxy of the ultimate rostral joint. However, the sclerotization of the abdomen and legs, the reticulation of the siphunculi, and the possession of three hairs instead of five on the first tarsal joints suggest closer relationship with *Macrosiphoniella*.

Aphis atomaria Walker = ***Macrosiphoniella pulvera*** (Walker)

1849 *Zoologist*, 7, app. 1.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally recorded from *Atriplex angustifolia*, and described as follows:

'The wingless oviparous (?) female. The body is pale green, oval, convex, of moderate size, and thickly covered with white powder: the antennae are yellow, black towards their tips, and very nearly as long as the body: the eyes are bright red: the rostrum is dull yellow, with a black tip: the tubes at the tip of the abdomen and the other tubes are dull yellow, and the latter have black tips, and are about one-sixth of the length of the body: the legs are yellow; the hind tibiae from the base to the middle, the tarsi and the tips of the other tibiae are black.

Found in the beginning of October.'

The Catalogue indicates a single specimen. Although no material named *atomaria* has come to light, a specimen from the Dry Collection, unnamed, but with the label *Atriplex angustifolia* in Walker's hand, is believed to be his type. This is an oviparous female of *Macrosiphoniella pulvera* (Walker), and, despite the totally inappropriate host indication, there are strong reasons for supposing it to represent *atomaria*; namely, that this is the only species he described from *Atriplex*; he described only the ovipara; and a single specimen is indicated in the Catalogue. Furthermore, the description agrees well with the specimen, and the date of collection (October) is consistent with the occurrence of oviparae. Thus *atomaria* must be added to the already long list of Walker species which are synonyms of his own *pulvera*. (B.M. 110.)

Aphis aucta = ***Acyrtosiphon auctus*** (Walker)

- 1849 Walker, F., *Zoologist*, 7, app. xxxiii: *Aphis aucta*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1017: *Aphis aucta*.
 1957 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 109, 313: *Acyrtosiphon shawi*.
 1958 Heie, O., *Ent. Medd.*, 28, 313: *Acyrtosiphon auctus*.

Described from *Arenaria* (now *Honkenya*) *peploides* as follows:

'*The wingless viviparous female*. The body is oval, rather flat, velvet-like, whitish green, tinged with yellow: the antennae are pale yellow, black at the tips, and shorter than the body: the eyes are red: the rostrum is pale yellow with a black tip: the tubes also are pale yellow with black tips, and about one-eighth of the length of the body: the tube at the tip of the abdomen and the legs are pale yellow; the thighs are pale green; the knees and the tips of the tibiae are brown; the tarsi are black.

The winged viviparous female. The body is black: the abdomen is dark green tinged with red, and almost black above: the antennae are black and a little longer than the body: the rostrum and the tubes are dull yellow with black tips, and the latter are a little more than one-sixth of the length of the body: the legs are black; the thighs at the base, and the shanks excepting their tips, are yellow: the wings are colourless and nearly twice the length of the body; the squamulae are pale yellow; the stigmata and the veins are brown.

Found in the autumn near Newcastle by Mr. Hardy.'

The Catalogue indicates no specimens and there are no original Walkerian mounts named *aucta*. Nevertheless, over the name *aucta* in the Dry Collection there were four alate viviparous females (now mounted on slides B.M. 111, 112) which appear to be a mixture of *Myzus persicae* and *Myzus certus* (Walker), and two oviparae (B.M. 113), both fragmentary, which have been identified as a species of *Acyrtosiphon* monoecious on *Honkenya* that has only recently been rediscovered (Stroyan, 1957; Heie, 1958).

Laing (1925, p. 123) regarded the alate specimens as *Myzus persicae*, but did not identify the oviparae. Theobald (1926, p. 318), on Laing's authority, put *aucta* as a synonym of *persicae*.

Hille Ris Lambers (1946, p. 198) described as a new species *Myzus caryophyllacearum*, closely allied to *persicae* and living on various Caryophyllaceae. The apterae of this species are dark red or brown, but the alatae are often indistinguishable from those of *persicae*. In the same paper he mentioned another closely allied species, *Myzus certus* (Walker), also with reddish apterae, on *Viola arvensis*. Later, in a letter to the present writer, the same author concluded that, as a result of transference experiments, *caryophyllacearum* and *certus* are probably the same.

Börner (1951) applied the name *auctus* Walker to this *Myzus* species, and considered that *caryophyllacearum* H.R.L. should be regarded as a synonym of it. However, Hille Ris Lambers (1952, p. 120) explained that this interpretation could not be accepted because Walker described his apterae of *aucta* as green. In fact, of course, the colour of Walker's apterae is irrelevant to this argument as they belong in a genus unrelated to that of the alatae, but if *caryophyllacearum* is a synonym of *certus*, then *auctus* Börner must also be a synonym, because *certus* has page priority.

It is not easy to arrive at a satisfactory determination of Walker's alate specimens of *aucta* on account of the very close morphological similarity between the alatae of *certus* (*caryophyllacearum*) and *persicae*. The only character known to the writer by which they may be separated is admittedly unreliable, namely the number of hairs on the ultimate rostral joint. In *persicae* there are usually 2-4 secondary hairs and in *certus* 4-7. Walker's four alatae have 3, 3, 4, and 6 respectively, so that on this basis we should have two specimens of *persicae*, one of *certus*, and one that might be either. The host plant, *Honkenya*, moreover, would be equally acceptable to either species.

But a precise determination of the alate *aucta* is now of lesser importance, since the identity of the oviparae has been established beyond doubt, and provides a reliable foundation on which

to base the name. In 1955 Mr. M. W. Shaw collected from *Cakile maritima* in Aberdeenshire an aphid that Stroyan (1957) described as new and named *Acyrtosiphon shawi*. The same species was found on *Honkenya peploides*, as well as on *Cakile*, in the Outer Hebrides in 1956.

Dr. Ole Heie, in 1957, found a green aphid on *Honkenya peploides* on the west coast of Jutland, and discovered that according to the list of aphid food plants given by Börner (1952) the only aphid known to feed on this plant is *Aphis aucta* Walker. He notified Mr. Stroyan, who compared the types of *A. shawi* with the hitherto unidentified oviparae of *aucta* in the Walker Collection and found they were unquestionably conspecific. Heie (1958) published a note on the identity of *aucta*, in which he identified his own specimens also as this species which he called *Acyrtosiphon auctus* (Walker). He included in his account these notes, which accord very closely with Walker's, on the colour of the living aptera:

'The aphids were green or yellowish green, nearly the same colour as that of leaves of the host plant (in the autumn pink individuals were found, too), and faintly covered by wax powder accentuating the segmentation. The eyes were red, the siphunculi, cauda, and tips of the legs faintly brownish. The antennae were a little longer than half body length, the siphunculi about one-eighth of the body length.'

The occurrence of oviparae on *Honkenya* (as shown by Walker's specimens and confirmed by Heie) suggests that the species is monoecious and holocyclic on that plant. Its presence on

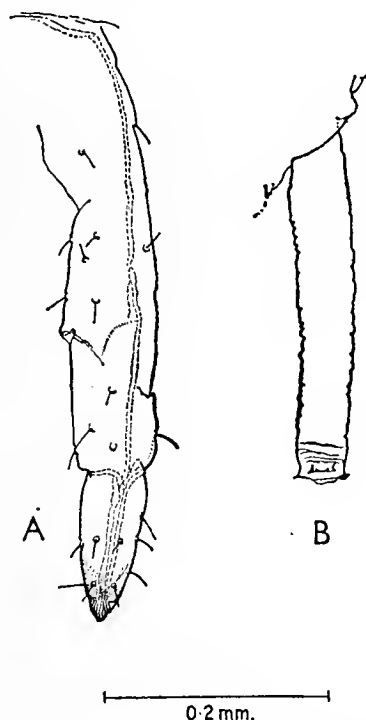


Figure 6. *Acyrtosiphon auctus* (Walker), lectotype, oviparous female, B.M. 113. A. Rostrum; B. Siphunculus.

Cakile, which commonly grows alongside *Honkenya*, may have been accidental, but in this connection it may be remarked that another ovipara of *auctus* was found in the Dry Collection among specimens named *redundans*, a species which Walker recorded from another common drift-line plant, *Crambe maritima*. It must be added, however, that the descriptions of *redundans* and *aucta* occur on consecutive pages, and the specimens on which they are based were in both cases

collected by Hardy near Newcastle and may have formed part of the same sample received by Walker. The other specimens in the sample labelled '*redundans*' are apterae and larvae of *Myzus persicae*, for which *Crambe* would be an appropriate host, but the presence among them of a single specimen of *auctus* can scarcely be accepted as proof that it also was taken from the same plant. This specimen is almost perfect, and it is unfortunate that it cannot be used as the type of *auctus* in preference to the poorly preserved individuals originally so named. Nevertheless it is almost certainly topotypic, and a description of it follows that of the lectotype.

LECTOTYPE. Oviparous female. '*Aphis aucta*.' From Dry Collection.

B.M. 113. Fig. 6.

Colour: body and appendages uniformly pale, except apex of fifth antennal joint and the base of the sixth, and the tips of the tarsi, which are faintly dusky. *Morphology*: body length about 1.8 mm. Head smooth, cephalic hairs about 0.02 mm., fine, blunt. Length of whole antenna 1.39 mm. Third joint 0.34 mm., slightly thickened on basal quarter, with a single secondary rhinarium, smooth, basal diameter 0.025 mm.; fourth joint 0.25 mm., lightly imbricated; fifth joint 0.21 mm., imbricated; base of sixth joint 0.12 mm., processus terminalis 0.27 mm. Antennal hairs 0.012–0.015 mm. long, sparse. Rostrum reaching third coxae, apical joint 0.14 mm. long, bluntly conical with slightly convex sides and 8 secondary hairs. Legs rather short with few hairs, those on the tibial apices rather stout, spiny, blunt reaching 0.035 mm. Left hind tibia entirely missing; right hind tibia with apex missing, bearing numerous pseudosensoria over most of its remaining length. First tarsal joints of fore and middle legs with 3 hairs (both hind tarsi missing). Siphunculus 0.32 mm. long, more or less cylindrical, narrowing slightly just before the well-developed flange, with 3 or 4 conspicuous, irregular, annular, subapical striations. Cauda missing. Dorsal abdominal hairs ± 0.015 mm.

TOPOTYPE. Oviparous female. ('*redundans*'). From Dry Collection.

B.M. 790.

Body spindle-shaped, 2.14 mm. long. Frons with small lateral prominences and slight median elevation. Cephalic hairs 0.020–0.025 mm., slender, with very slightly expanded apices. Length of whole antenna: 1.24 mm. Third joint 0.33 mm., without secondary rhinaria; fourth 0.22, fifth 0.18, sixth 0.11 + 0.22 mm. Apical joint of rostrum 0.14 mm. long, with 5 secondary hairs. Hind tibiae only slightly swollen on basal half, pseudosensoria distributed over most of the joint, but more numerous on basal half. Length of second joint of hind tarsus 0.15 mm. First tarsal joints all with 3 hairs. Siphunculi 0.29 and 0.31 mm. long. Cauda 0.25 mm. long with 11 hairs, finger-shaped, very slightly constricted at about a third of its length from the base. Eighth tergite with 10 hairs, slender, blunt, or with scarcely swollen tips, the longest about 0.040 mm. Two indistinct marginal tubercles are discernible on the left. Dorsal abdominal hairs 0.015–0.020 mm. Other characters as in lectotype.

Aphis bartsiae Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xlix.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally described, from *Bartsia* (now *Parentucellia*) *viscosa*, as follows:

'The winged viviparous female. While a pupa it is elliptical, rather flat, dull greenish yellow, tinged with pale red: the antennae are black, pale towards the base, and much shorter than the body: the rostrum is dull yellow; its tip and the eyes are black: the tubes are about one-tenth of the length of the body: the legs are dull yellow; the tarsi, the knees and the tips of the tibiae are black.'

The Catalogue indicates ten specimens. There now exist three, mounted from the Dry

Collection: an alate viviparous female and two nymphs of *Brachycaudus helichrysi* (Kaltenbach). The alata had the label '*Bartsia*' attached to its pin, and the nymphs another, partly illegible, with '*Bartsia odon(tites)*'. The alata is fixed as lectotype (B.M. 128).

Aphis basalis Walker = ***Acyrtosiphon pisum*** (Harris)

1848 *Zoologist*, 6, 2220.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1013.

This is one of several species recorded from *Lycopsis arvensis* at Fleetwood, Lancashire, in autumn, and described as follows:

'*The wingless viviparous female.* The body is grayish green, with a whitish bloom beneath, and of rather small size: the antennae are dull yellow, with black tips, and much longer than the body: the mouth is pale yellow; its tip is black: the tubes are dull yellow, black at the base and at the tips, and at least one-fourth of the length of the body: the legs are long and dull pale yellow; the knees, the tarsi, and the tips of the tibiae are black.'

The Catalogue indicates a single specimen. No specimen so named has been found in the Collections. However, an examination of the specimens said to have been taken by Hardy from *Lycopsis* reveals, among those labelled '*lycopsidis*', one to which Walker's description of *basalis* applies reasonably well. This is a fourth-stage larva of what appears to be *Acyrtosiphon pisum* (Harris), and is here assumed to be the specimen indicated in the Catalogue. It is therefore designated type of *basalis* Walker (B.M. 530). (See also under *Lycopsis* Group, p. 98.)

Theobald (1917, p. 77) stated his belief that all Walker's 'species' from *Lycopsis* are in fact only different stages, morphs, or colour varieties of two species, *familiaris* and *lycopsidis*, and he put *basalis* in the latter because its antennae are described as being longer than the body. The same author (1926, p. 364) quoted Laing's determination of *lycopsidis* as *granarium* Kirby (i.e. *Sitobion avenae* (Fabricius)).

Börner (1952, p. 169) applied the name *basalis* to the species of *Dactynotus* associated with *Tussilago farfara*, putting the hitherto accepted *tussilaginis* Walker as a synonym. The only excuse for this would seem to be Walker's mention of long legs, and siphunculi black at base and apex; characters typical of *tussilaginis*. The small greyish-green body with whitish bloom of Walker's account, however, could not apply to this species, but is characteristic of larval *pisum*. It must be admitted that siphunculi with black bases are not typical of *pisum*, but as the rest of the description applies well, and a specimen exists to support it, the evidence would seem to be fairly strong in favour of *pisum*'s being Walker's type of *basalis*.

Aphis bellula Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxvi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1019.

Recorded from *Prunus spinosa* in September, and described as follows:

'*The winged viviparous female.* The body is black and very small: the borders of the fore chest are dark green: the abdomen is very dark green and marked above with black: the antennae are a little shorter than the body: the rostrum is dull green with a black tip: the tubes are dull green and hardly one-eighth of the length of the body: the legs are pale green; the tarsi, the tips of the thighs and of the tibiae, and the four hinder thighs from the middle to the tips, are black: the wings are colourless and very much longer than the body; the squamulae and the costal veins are pale yellow; the stigmata and the veins are brown.

Var. ? Much larger, and the abdomen is green on the back as well as below: the stigmata are pale brown.'

No specimens are indicated in the Catalogue, and none named *bellula* exist in the Collections.

Aphis betulina Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1039.

Described, with no host indication other than that implied in the specific name, as follows:

'*Fuscescens; antennae corpore breviores; cornicula pallida, mediocria; pedes pallidi, tibiis apice tarsisque nigricantibus; alae limpidae.*

The viviparous winged female. Small, brownish: feelers pale towards the base, rather stout, shorter than the body; fourth joint much shorter than the third; fifth as long as the fourth; sixth a little shorter than the fifth; seventh about twice the length of the sixth: nectaries pale, about one-sixth of the length of the body: legs pale; feet and tips of the shanks blackish: wings colourless; distance between the first and second veins more than twice farther at the tips than at the base; third very much nearer to the second at the base than at the tip, as near to the second at the base as the second is to the first; first fork a little nearer to the third vein than to the second fork, very much nearer to the third vein than the third is to the second; second fork a little nearer to the fourth vein than to the first fork; fourth vein slightly curved, much farther from the tip of the rib-vein than from the second fork. Length of the body $\frac{1}{2}$ line; of the wings $1\frac{1}{2}$ line.

England.'

No specimens are enumerated in the Catalogue, and no material named *betulina* has been found in the Collections. It is possible that Walker was describing a vagrant taken on birch.

Aphis bifrons Walker: *nomen dubium*

1848 *Ann. Mag. nat. Hist.* (2), 1, 444.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 947.

'A single insect found near London on the 20th of July, 1847, on the alder?

The viviparous winged female. The body is yellowish brown and thickly covered with white powder: the head short and broad: the forehead broad, very slightly convex, with a little tubercle on each side at the base of the feelers: the eyes are dark brown and prominent: the mouth reaches the hind-shanks: the chest and the breast are dark brown; the fore-part paler: the feelers are setaceous, more than half the length of the body; the fourth joint a little shorter than the third; the fifth a little shorter than the fourth; the sixth full half the length of the fifth; the seventh a little shorter than the fifth: the nectaries do not appear above the surface of the abdomen: the legs are tawny, long, and rather stout; the knees, the feet, and the tips of the shanks are dark brown; the shanks are very slightly curved; the fore-legs are a little shorter than the hind-legs: the wings are colourless, and not very long; the veins and the wing-brands are tawny; the brands are irregularly spindle-shaped; the rib-veins widen gradually into the brands very soon after the middle of the fore-border of the wing; the fourth vein springs from hind-border of the brand at three-fourths of the length of the latter; the third vein is distinct along its whole course, and is forked a little before one-third of its length, and forked again just after two-thirds of the same.

Length of the body $1\frac{1}{4}$ line; of the wings 4 lines.'

The Catalogue indicates no specimens, and none named *bifrons* or agreeing with Walker's description has come to light. The description certainly does not suggest '*Betacallis*' *gigantea*, as

Börner (1952, p. 56) postulated, a species which Quednau (1954, p. 22) regarded as *comes* Walker. It is more likely that this is another instance of Walker describing a vagrant.

Aphis bufo Walker = ***Iziphya bufo*** (Walker)

- 1848 (Haliday MS) Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 46: *Aphis bufo*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 954, 1169: *Aphis bufo*.
 1885 Lichtenstein, J., *Les Pucerons. Monographie des Aphidiens.*, pp. 125, 136: *Aphis bufo*.
 1921 Laing, F., *Ent. mon. Mag.*, 57, 125: *Saltusaphis familiaris*.
 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 64: *Saltusaphis familiaris*.
 1939 Hille Ris Lambers, D., *Zoöl. Meded.*, 22, 112: *Iziphya familiaris*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 65: *Iziphya bufo*.
 1952 Hille Ris Lambers, D., *Opusc. ent.*, 17, 58: *Iziphya bufo*.
 1954 Quednau, W., *Mitt. biol. ZentAnst. Berl.*, 78, 40, 45: *Iziphya bufo*.

'*The viviparous wingless female.* Found in the beginning of October by the sea-shore near Fleetwood [Lancashire] on *Lycopsis arvensis*, the small bugloss; also by Mr. Hardy near Newcastle on *Carex arenaria*, sand reed, and by Mr. Haliday near Belfast. While very young the body is pale green, but most of the abdomen is red: the feelers are pale green, and nearly as long as the body; the tips of the joints are black: the mouth is reddish green, and reaches the base of the hind legs; its tip and the eyes are black: the legs are red, stout, and rather short. When full-grown the body is oval, broad, tuberculate, hairy, and yellow: there are two rows of larger tubercles along the back: the tip of the abdomen is black: the feelers are black, setaceous, and a little more than half the length of the body; the third joint is yellow: the eyes are black, and each of them being quite divided seems to be double: the mouth is yellow with a brown tip, and does not reach the middle hips: the legs are short, black, bristly, and remarkably stout, especially the fore thighs and the middle thighs and the hind shanks; the fore shanks and the middle shanks are yellow, darker towards the base, and the middle shanks are also darker towards their tips: the nectaries hardly rise above the surface of the body. The eggs of this species are spindle-shaped, dark green, and thickly covered with white powder; they are fastened along the blades of the leaves, which when dead collapse, and preserve them from injury.

The wingless male. The body is yellow with two longitudinal stripes and with black tubercles: the feelers are longer than the body; the legs are more slender than those of the female; the thighs are yellow with black tips.'

HOLOTYPE. Larva of apterous viviparous (?) female, '*Aphis familiaris*', from Dry Collection.

B.M. 173. Plate I, B.

Colour: head brown, with pale longitudinal median band. Antennae evenly brown. Femora dark brown; tibiae pale with dark heavily chitinated 'knee caps' on fore and middle legs. Tergal sclerites, siphunculi, and perisiphuncular plates brown. *Morphology:* body length: 1.56 mm. Antenna: I: 1.17; III: 0.30, IV: 0.18, V: 0.19, VI: 0.12 + 0.20 mm.; joints III–VI densely covered with fine spinules in transverse annular rows. Primary rhinaria small, circular. Antennal hairs acute, very short (up to 0.01 mm.), sparse. Rostrum with short (0.08 mm.), triangular, ultimate joint, with 1 pair of secondary hairs. Legs short and stout; fore and middle femora very broad. Tibiae, tarsi, and apices of femora minutely spinulose. First tarsal joints with 5 hairs. Second joint of hind tarsus: 0.13 mm. Tibial hairs acute, up to 0.05 mm. Siphunculi short (not measurable in this specimen owing to vertical compression), thick, densely spinulose, with rounded apices; orifice oval, of smaller diameter than body of siphunculus. Tergal hairs fan-shaped, arising from separate sclerites, up to 0.025 mm., except those on seventh and eighth tergites which reach 0.06–0.07 mm., and the apices of which are scarcely expanded.

The Catalogue (p. 1169) indicates a single dry specimen. Over the name *bufo* in the Dry Collection there was an apterous viviparous female of *Cinara* (*Cupressobium*) *juniperi* (Degeer), now mounted by Laing, who identified it as a *Lachmus* (Laing, 1921, p. 127). Walker's description of the apterous viviparous female of *bufo* does not agree with this specimen, but does agree closely with another, also said to have been taken from *Lycopsis*, which was in the Dry Collection over the name *familiaris*, and which Laing (1921, p. 125) described and figured as *Saltusaphis familiaris* (Walker). Theobald (1929, p. 65) was aware of the discrepancy between this species and the original description of *familiaris*, but accepted Laing's diagnosis. The same species was recorded by Hille Ris Lambers, as *Iziphyia familiaris*, from *Carex arenaria* in the Netherlands (1939). The name *familiaris*, however, is unacceptable here, because it is now clear that Walker's description of *familiaris* refers to *Brachycaudus helichrysi* (Kaltenbach), and, furthermore, there appears to be a type specimen to support it. It seems reasonable to assume that a substitution of specimens or labels must have occurred at some stage, and that the specimen described by Laing is in fact the type of *bufo*. (See also *lycopsidis* and *familiaris*.) It is possible that Walker's description of the wingless male may be based on a specimen of *Schizaphis rufula* (Walker). (See p. 99.)

Aphis cadiva Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1017.

Recorded from *Silene maritima* near Fleetwood, Lancashire, and described as follows:

'The wingless viviparous female. The body is small, oval, rather flat and broad, dull, pale green, slightly tinged with yellow: the eyes are red: the rostrum is pale yellow with a black tip: the antennae are pale green, black towards their tips, and about half the length of the body: the legs are pale yellow; the thighs are pale green; the tips of the shanks are brown; the feet are black. The young ones are narrow and linear, and sometimes pale red.

Found near Fleetwood in the autumn.'

The Catalogue indicates no specimens. An alate viviparous female, incomplete, named *Aphis cadiva* in the Dry Collection and now mounted in balsam, appears to be a species of *Hayhurstia*, possibly *cucubali* Passerini non Linnaeus, but as only the apterous form is described this cannot be used as the type. Furthermore, Walker's species is recorded from *Silene maritima* and *cucubali* is at present known only from *S. inflata*. For the present at least it is preferred to leave *cadiva* a *nomen dubium*.

Aphis carduina Walker = **Capitophorus carduinus** (Walker)

1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 6, 44: *Aphis carduina*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 993: *Aphis carduina*.

1885 Lichtenstein, J., *Les Pucerons, Monographie des Aphidiens.*, pp. 53, 84: *Phorodon carduinum*.

1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 234: *Phorodon carduinum*.

1912 Davidson, W. M., *J. econ. Ent.*, 5, 409: *Phorodon carduinum*.

1913 Goot, P. van der, *Tijdschr. Ent.*, 56, 84: *Capitophorus carduinus*.

1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 115: *Capitophorus carduinus*.

1925 Davidson, J., *A List of British Aphides*, p. 17: *Capitophorus flaveola*.

1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 250: *Capitophorus flaveolus*.

1934 Gillette, C. P., and Palmer, M. A., *Ann. ent. Soc. Amer.*, 27, 146: *Capitophorus carduinus*.

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Capitophorus flaveolus*.

- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 134: *Capitophorus carduinus*.
 1952 Palmer, M. A., *Aphids of the Rocky Mountain Region*, p. 253: *Capitophorus carduinus*.
 1952 Stroyan, H. L. G., *Entomologist*, 85, 250: *Capitophorus carduinus*.
 1953 Hille Ris Lambers, D., *Temminckia*, 9, 140: *Capitophorus carduinus*.
 1955 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 106 (7), 292, 293: *Capitophorus carduinus*.
 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 276: *Capitophorus horni*, subsp. *gynoxantha* partim?
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 208: *Capitophorus carduinus*.

Originally described as follows:

'*The viviparous wingless female*. The body is rather small, oval, somewhat flat, pale green: the front is narrow and rather bristly, and has a tubercle on each side: the feelers are yellow, and much longer than the body; the tips of the joints are black: the first and the second joints are angular; the fourth is much shorter than the third; the fifth is as long as the fourth; the sixth is not half the length of the fifth; the seventh is about four times the length of the sixth: the mouth is pale yellow; its tip and the eyes are black: the tube at the tip of the abdomen is short: the nectaries are pale green with black tips, and nearly one-fourth of the length of the body: the legs are long and pale yellow; the knees, the feet, and the tips of the shanks are black. In the beginning of November.

The viviparous winged female. It is like the wingless insect in colour, but somewhat darker about the chest: the wings are colourless, and much longer than the body; the second vein diverges from the first, but is nearly parallel to the third; the second fork of the latter begins a little after one-third of the length of the vein, and its lower branch converges slightly towards the second vein; the second fork is beyond two-thirds of the length; the fourth vein is curved moderately and equally throughout its length, and the angle of the branch whence it springs is very slight.

Length of the body $\frac{1}{2}$ line; of the wings $1\frac{1}{2}$ line.

Found on the thistle from June till November.'

The Catalogue indicates sixteen Walker slides. Ten now exist, containing apterous, alate, and larval females taken in Southgate, Edmonton, and Birchwood on various dates between 7th June and 11th October, 1847. (B.M. 204-209; H.D. 40, 269, 270; N.M.I. 17). All contain individuals of the same species.

LECTOTYPE. Apterous viviparous female. 'Thistle. Southgate. June 18—[18]47. *carduina*.'

B.M. 204.

Colour: body and appendages uniformly pale. *Morphology*: body length: 1.67 mm. Head with short, slightly divergent, lateral frontal prominences. Antenna: 1.58; III: 0.33, IV: 0.27, V: 0.24, VI: 0.09 + 0.49 mm.; first joint with inner margin extended and bearing 2 short capitate hairs; antennal hairs very short (0.01 mm.), with thickened rounded apex tapering to narrow base. Rostrum with narrow, elongate ultimate joint (0.14 mm.), with 2 secondary hairs. Legs slender; tibial hairs of varying length up to about 0.02 mm., some acute, some capitate, and some with blunt apices; first tarsal joints with 3 hairs; second joint of hind tarsus 0.10 mm. Tergum slightly rugose, bearing large capitate hairs of varying length, the shortest (0.02 mm.) on the disc of the abdomen and becoming progressively longer towards the extremities, those on the head and the eighth abdominal tergite reaching 0.08 mm.; arrangement not clearly visible in this specimen, but apparently simple, i.e., one pair each of spinal, pleural, and marginal hairs per segment, except VI, VII, and VIII which have 5, 4, and 6 long hairs respectively. Siphunculi long (0.57 mm.), slender, faintly imbricated, expanded at the base and also very slightly at the apex; flange small. Cauda (0.38 mm.) more or less conical, without basal constriction, with 8 hairs, 5 lateral and 3 dorso-apical.

Theobald (1926) assumed, because the descriptions of the two were somewhat similar, that *carduina* was the same as *flaveola* Walker. No authentic material of *flaveola* exists, and, as Hille Ris Lambers (1953, p. 150) observed, there is some doubt as to whether *flaveola* should even be regarded as a *Capitophorus*. There seems no reason to question the validity of *carduinus*.

Aphis cerasina Walker: *nomen dubium*

1850 *Ann. Mag. nat. Hist.* (2), 6, 43.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 992.

Recorded from *Cerasus Avius*, i.e. *Prunus avium*, and described as follows:

'The viviparous wingless female. The body is rather small, elliptical, flat, greenish yellow with two irregular black lines on each side of the abdomen: there is a row of small tubercles on each side of the body: the feelers are pale yellow, black towards the tips, and not half the length of the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are white, and not one-fifth of the length of the body: the legs are yellow and rather short; the knees are brown; the feet and the tips of the shanks are black.

1st var. The body is pale yellow.

2nd var. The body is pale yellow with two large green spots on each side of the abdomen.

Found on *Cerasus Avius*, the wild cherry, near Carlisle, in the middle of November.'

No specimens are indicated in the Catalogue, and none named, or identifiable as, *cerasina* have been found.

Aphis certa Walker = **Myzus (Nectarosiphon) certus** (Walker)

1849 Walker, F., *Zoologist*, 7, app. xxxii: *Aphis certa*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1017: *Aphis certa*.

1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 323: *Myzus persicae* var. *cerastii*.

1946 Hille Ris Lambers, D., *Bull. ent. Res.*, 37, 198: *Myzus (Nectarosiphon) certus*; *Myzus (Nectarosiphon) caryophyllacearum*.

1951 Börner, C., *NachrBl. dtsch. PflSchDienst. Berl. (N.F.)*, 5, 103: *Myzodes auctus*; *Myzodes certus*.

1952 Börner, C., *Mitt. thüring. bot. Ges., Beiheft* 3, 125: *Myzodes auctus*; *Myzodes certus*; 470: *Myzodes auctus* ssp. *pseudopersicae*.

1954 Meier, W., *Mitt. schweitz. ent. Ges.*, 27, 361: *Myzus certus*.

1955 Hille Ris Lambers, D., *Zoology of Iceland*, 3(52a), 10: *Myzus (Nectarosiphon) certus*.

1955 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 106(7), 336: *Myzus certus*.

1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 189: *Myzodes auctus*; *Myzodes certus*.

1957 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 109(11), 355: *Myzus (Nectarosiphon) certus*.

Originally recorded from *Viola tricolor* in autumn near Fleetwood, Lancashire, and described as follows:

'The wingless viviparous female. The body is small, oval, convex, dull black: the thorax is reddish: the head is red: the tip of the abdomen is dark red: the antennae are very slender, reddish towards the base, and nearly as long as the body: the rostrum is dull dark green with a black tip: the tubes are dull red with black tips, and about one-fifth of the length of the body: the legs are black; the thighs at the base, and the four anterior tibiae, excepting their tips, are yellow.'

The Catalogue indicates no specimens. However, an oviparous female, named *certa* in the Dry Collection and mounted by Laing, is believed to be Walker's type.* Although the macerated specimen is scarcely distinguishable morphologically from oviparae of *Myzus persicae* (Sulzer), the dark, blackish, or reddish colour noted by Walker is typical of living *certainus* as described by Hille Ris Lambers (1946), whereas the oviparae of *persicae*, though often reddish, are pale. Further evidence in favour of *certainus* is given by the occurrence of the ovipara on *Viola*, for *certainus* is holocyclic on that plant, while *persicae* normally produces sexuales only on its primary hosts, peach and certain other *Prunus* spp.

HOLOTYPE. Oviparous female. 'A. certa.' From Dry Collection.

B.M. 226. Fig. 7.

Colour: body uniformly pale, transparent; head pale, frons between lateral prominences dusky; antennae slightly darker than the head, apex of V and whole of VI darker still, brownish.

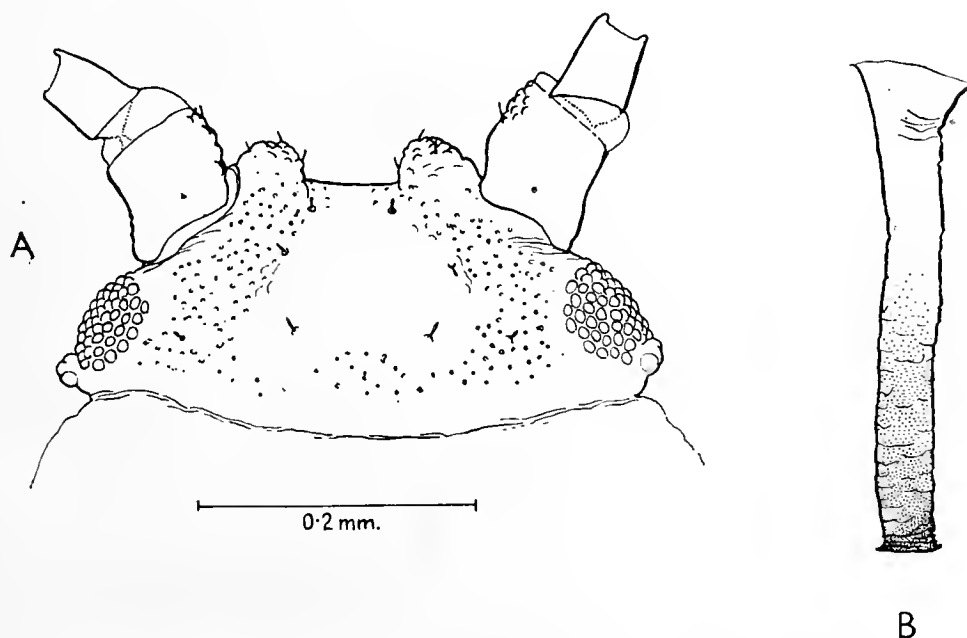


Figure 7. *Myzus certus* (Walker), lectotype, oviparous female, B.M. 226. A. Head; B. Siphunculus.

Rostrum pale, with darker apex. Femora unevenly dusky brown with pale bases and apices, hind femur darkest; fore and middle tibiae pale with dark apices, hind tibia dark except for basal one-sixth; tarsi dark. Siphunculus dark at the apex and with a nebulous dusky area in the middle, colourless at the base. Cauda, anal, and subgenital plates dusky. *Morphology*: body length: 2.06 mm. Head sclerotic, cuticle spinulose on dorsal and ventral surfaces except for a smooth area in the centre of the vertex; lateral prominences hemispherical, each with 3 hairs, frons between them flat; cephalic hairs of myzine type, ± 0.015 mm. Antenna 1.54 mm.; III: 0.35, IV: 0.29, V: 0.23, VI: 0.13 + 0.37 mm.; joints imbricate, hairs sparse, short (up to 0.01 mm.). Ultimate rostral joint 0.11 mm., with 2 secondary hairs. Dorsal abdominal hairs ± 0.01 mm. Siphunculus 0.39 mm., distal half irregularly imbricated and very slightly swollen, remainder smooth, flange well-developed. Cauda thick, without constriction, slightly tapering

* On the same slide as the type of *certainus* are two apterous viviparous females of *Brachycaudus helichrysi* (Kaltenbach), also named '*Aphis certa*' in the Dry Collection. These are presumed to be Walker's types of his *Aphis insessa*, the description of which comes next after *certainus* and agrees with this interpretation. Both species were apparently taken on the same host at the same time. (See *insessa*.)

to irregularly rounded apex, with 8 hairs; caudal length 0.18 mm. Hind tibia slightly thickened, its greatest diameter about $1\frac{1}{2}$ times that of fore and middle tibiae, with 71 pseudorhinaria.

Walker's species was rediscovered by Hille Ris Lambers (1946) and is very closely related to *Myzus persicae* (Sulzer). It is characterized by reddish-coloured apterae and apterous males, and lives holocyclically on *Viola* spp. and *Caryophyllaceae*. The synonymy is discussed under *aucta*.

Aphis chrysanthemi Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. lvi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1028.

Recorded from *Chrysanthemum leucanthemum*, and originally described as follows:

'The winged viviparous female. While a pupa it is dull red: the antennae are black, dull green at the base: the rostrum is dull green, with a black tip: the tubes, the legs and the rudimentary wings are also dull green. The winged *Aphis* is black and very small: the borders and the under-side of the prothorax are dark brown: the abdomen is very dark brown: the antennae are black and nearly as long as the body: the rostrum is dull yellow, with a black tip: the tubes are black and about one-tenth of the length of the body: the legs are black; the fore thighs are pale yellow at the base; the tibiae are dull yellow, with black tips: the wings are colourless; the squamulae are yellow; the brands and the veins are brown.

Found in the middle of September.

Var. 1. The borders and the under-side of the prothorax and the abdomen are green: the rostrum is green, with a black tip: the legs are black; the fore-thighs are pale yellow at the base: the squamulae are pale yellow; the stigmata are pale brown; the veins are brown.

Var. 2. Like the first, but the abdomen is black at the base.

Var. 3. Like the first, but the back of the abdomen is dark green; its disk is black.

Var. 4. Like the first, but the tubes are dull green and as long as one-eighth of the body.

Var. 5. Like the first, but the middle thighs, the fore tibiae, and the middle tibiae are yellow at the base.

Var. 6. Like the first, but the stigmata are brown.

The wingless viviparous female. The body is oval and dull green: the antennae are dull green and half the length of the body: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are dull green and as long as one-eighth of the body: the legs are short and dull green; the tarsi and the tips of the tibiae are brown.

Found with the preceding varieties of the winged *Aphis*, at the end of May.'

The Catalogue indicates two dry specimens and adds details of wing venation. There were in fact seventeen specimens named *chrysanthemi* in the Dry Collection. They have now been mounted and are found to comprise the following species:

Aphis fabae Scopoli: 2 apt. viv. fem., 3 nymphs (B.M. 235);

Myzus persicae (Sulzer): al. viv. fem., apt. viv. fem., 2 nymphs (B.M. 233, 234);

Aulacorthum solani (Kaltenbach): apt. viv. fem., 2 larvae, 1 nymph (B.M. 233);

Hyperomyzus lactucae (Linnaeus): 1 nymph (B.M. 233);

Dactynotus sonchi (Linnaeus): 3 oviparae (B.M. 231, 232).

None of these specimens, however, can be satisfactorily identified with the description of *chrysanthemi*, and at first it was thought that the types of *chrysanthemi* had been lost. But it was later discovered that a similar lack of accord existed between the description of *nigro-rufa* Walker (1848, *Zoologist*, 6, 2247) and the eight specimens which originally stood over that name in the Dry Collection. These comprise six species:

- Aphis fabae* Scopoli: al. viv. fem. (B.M. 581);
Aphis fabae Scopoli: apt. viv. fem. (labelled 'Anagallis') (B.M. 585);
Brachycaudus helichrysi (Kaltenbach): al. viv. fem. (B.M. 580);
Myzus certus (Walker): 2 al. viv. fem. (B.M. 582);
Myzus persicae (Sulzer): apt. viv. fem. ('Anagallis') (B.M. 584);
Rhopalomyzus poae (Gillette): apt. viv. fem. ('Anagallis') (B.M. 584);
Sipha littoralis (Walker): larva ('Anagallis') (B.M. 583);

but none of these specimens fits the description of *nigro-rufa*. On further examination, however, some of them have been found to fit the descriptions of three species—*Aphis sonchi*, *Aphis dianthi*, and *Aphis persola*, recorded from *Chrysanthemum segetum*—which immediately precede Walker's account of *nigro-rufa*. Furthermore, one specimen from the sample named '*nigro-rufa*' can be matched with the description of *chrysanthemi*, while two specimens from the '*chrysanthemi*' sample can be referred to two of the species recorded from *C. segetum*. This suggests a possible confusion of two different collections of aphids from *C. segetum* and *C. leucanthemum*, and if the specimens from both collections are pooled, many of them can be allotted with reasonable confidence to the available descriptions.

By this means the alate viviparous female of *Brachycaudus helichrysi* from the '*nigro-rufa*' sample becomes available for *chrysanthemi*, which is the only species Walker recorded from *C. leucanthemum*, while to the species described from *C. segetum* other specimens can be apportioned as follows: the three oviparae of *Dactynotus sonchi* in the '*chrysanthemi*' sample to '*Aphis Sonchi*, var.?' (1848, *Zoologist*, 6, 2246); the specimens of *Myzus persicae* from both samples, and perhaps also the *M. certus* and *Rhopalomyzus poae* from the '*nigro-rufa*' sample, to '*Aphis Dianthi*?' (*ibid.*, 2246), which is described twice on the same page, the first account giving *Anagallis* as an additional host plant; a nymph of *M. persicae* or of *Hyperomyzus lactucae* to '*Aphis persola*' (*ibid.*, 2246), only the nymph of which is described; and specimens of *Aphis fabae* from both samples to '*Aphis Rumicis*' (*ibid.*, 2247), which is recorded, together with *nigro-rufa*, from *Anagallis arvensis*. Thus, only *nigro-rufa* itself is left without a suitable specimen, while *Aulacorthum solani* and *Sipha littoralis* remain unattached to descriptions.

Theobald (1927, p. 245) appears, therefore, to have been correct in regarding *chrysanthemi* Walker as a synonym of *Brachycaudus helichrysi* (Kaltenbach).

Aphis cisti Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1037.

Originally described, without host plant, locality, or other data, as follows:

'*Flavescens, minuta, brevis, lata, fere elliptica; antennae corpore breviores; cornicula brevia.*

The viviparous wingless female. Yellowish, convex, small, short, brown, almost elliptical: front slightly convex: feelers much shorter than the body; joints from the third to the sixth successively decreasing in length; seventh more than twice the length of the sixth: nectaries about one-eighth of the length of the body: legs rather short.

The viviparous winged female. Feelers a little shorter than the body: wings colourless; distance between the first and second veins more than twice farther at the tip than at the base; third more than twice farther from the second at the tip than at the base; very little farther at the base from the second than the second is from the first; first fork nearer to the second than to the third vein; second fork often wanting; fourth vein slightly curved, farther from the tip of the rib-vein than from the second fork. Length of the body $\frac{1}{3}$ line; of the wings $1\frac{1}{3}$ line.

Scotland.'

The Catalogue indicates no specimens and no material named *cisti* exists in the Collections.

Aphis collega Walker = **Macrosiphoniella pulvera** (Walker)

1848 *Zoologist*, 6, 2218.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1011.

Recorded from *Artemisia maritima* near Fleetwood, Lancashire, in October, and described as follows:

'The wingless viviparous female. The body is oval, red, slightly convex, covered with a white bloom, smaller than that of *Aphis pulvera*: the eyes are dark red: the rostrum is pale red, with a black tip: the antennae are pale red, black towards the tips, and as long as the body: the tubes are pale red, with black tips, and about one-sixth of the length of the body: the legs are pale reddish yellow; the knees, the tarsi, and the tips of the tibiae are black.'

Two specimens are indicated in the Catalogue, but none named *collega* have come to light. From the description and the host plant it seems likely that Walker had before him a red form of *pulvera*, and it is proposed to regard *collega* as a synonym of that species as other authors have done.

Aphis comes Walker = **Clethrobium comes** (Walker)

1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 258: *Aphis comes*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 937: *Aphis comes*.

1885 Lichtenstein, J., *Les Pucerons. Monographie des Aphidiens.*, pp. 126, 130: *Aphis comes*.

1925 Davidson, J., *A List of British Aphides*, p. 22: *Euceraphis comes*.

1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 398: *Euceraphis betulae*?

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 70: *Euceraphis betulae*?

1947 Hille Ris Lambers, D., *Zoöl. Meded.*, 28, 332: *Clethrobium comes*.

1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 56: *Betacallis comes*.

1954 Quednau, W., *Mitt. biol. ZentAnst. Berl.*, 78, 22: *Betacallis comes*.

1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 77: *Betacallis comes*.

Originally described as follows:

'This insect is of rare occurrence, and has much resemblance to *Aphis Betulae*.

The viviparous winged female. Found on the birch, *Betula alba*, in August and in October. The body is yellowish brown, and rather long: the front of the head is rather narrow and nearly straight, and there is a slight protuberance at the inner base of each feeler: the feelers are black, setaceous, slightly hairy, and much shorter than the body; the first and the second joints are yellowish; the fourth is much shorter than the third; the fifth is much shorter than the fourth; the sixth is not half the length of the fifth; the seventh is a little shorter than the sixth: the mouth is yellow, and reaches to the middle hips; its tip is black: the eyes are dark red: the disc of the chest and that of the breast are black: the abdomen has two black spots on each side: the nectaries are extremely short, and like those of *A. Betulae*: the legs are brownish yellow, long, and somewhat hairy; the feet, the knees, and the tips of the shanks of the fore-legs and of the middle legs, and the whole of the hind legs excepting the base of the thighs, are black: the wings are colourless; the wing-ribs, the wing-brands and the veins are tawny; the fourth branch-vein sends forth its first fork at one-third, and its second fork at two-thirds, of its length. The young ones in the body sometimes amount to thirty in number, of which a third part are large and the rest are small.

1st variety. With four black spots on each side of the abdomen.

Length of the body 2-2½ lines; of the wings 5-6 lines.'

The Catalogue adds no more to the description and indicates no specimens. No material named *comes* or identifiable with the description has come to light.

Despite the absence of type material, Walker's description is sufficiently exact to leave no doubt that he was dealing with *Clethrobius comes*, a species not mentioned in the literature again until Hille Ris Lambers redescribed it in 1947. He gives its distribution as Europe (England, Netherlands, Italy) and Western Asia ?, and adds that *Clethrobius giganteus* (Cholodkovsky) may prove to be the same species.

There seems to be little justification for including *comes* in the genus *Betacallis* Matsumura, 1919, as Börner (1952) and other authors have done. This genus is characterized by antennae much longer than the body, longer even than the fore wings, and siphunculi three times as long as broad, constricted in the middle and flared at the apex. In *comes*, however, the antennae are only two-thirds of the length of the body, and little more than half that of the fore wings, while the siphunculi are conical, unconstricted, and in length only about three-fifths of their basal width.

Aphis commoda Walker: *nomen dubium*

1848 *Zoologist*, 6, 2219.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Originally recorded from *Artemisia maritima* near Fleetwood, Lancashire, in October, and described as follows:

'The winged viviparous female. The body is small and black: the abdomen is very dark green: the antennae are black and as long as the body: the mouth is yellow, with a black tip: the tubes are black and about one-sixth of the length of the body: the legs are yellow and moderately long; the knees, the tarsi and the tips of the tibiae are black: the wings are colourless and very much longer than the body; the squamulae are yellow; the stigmata and the veins are brown.'

The Catalogue indicates one specimen, but none so named has been found in the Collections.

Hille Ris Lambers (1938, p. 29) and Börner (1952, p. 168) have both placed *commoda* as a doubtful synonym of *pulvera* Walker; but Walker's description states that the body is small and black, the abdomen very dark green, and makes no mention of the characteristic pulverulence of *pulvera*. It might well be that he had before him a vagrant taken accidentally on *Artemisia maritima*, and it is thought preferable to regard *commoda* as a *nomen dubium*.

Aphis confusa Walker = ***Aphis confusa*** Walker

1801 Schrank, F. von Paula, *non* Scopoli, J. A., *Fauna Boica*, 2(1), 105: *Aphis scabiosae*.

1843 Kaltenbach, J. H., *Monographie der Familien der Pflanzenläuse (Phytophthires)*, p. 60: *Aphis scabiosae*.

1849 Walker, F., *Zoologist*, 7, app. xlv: *Aphis confusa*; *Aphis conspersa* ?

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1023: *Aphis confusa*; *Aphis conspersa* ?

1854 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 128: *Aphis ochropus*.

1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 218: *Aphis scabiosae* ?; 309: *Anuraphis conspersa* ?

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 68: *Doralis scabiosae* ?; 69: *Anuraphis conspersa* ?

1950 Börner, C., *Neue Europäische Blattlausarten*, Selbstverlag, p. 7: *Doralina confusa*.

1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 90: *Cerosipha confusa*.

Recorded, together with *Aphis conspersa* Walker, from *Scabiosa arvensis*, and described as follows:

'The wingless viviparous female. The body is small, oval, rather flat, smooth, green, not shining; the sides of the abdomen are paler: the antennae are white, black towards their tips, and much more than half the length of the body: the rostrum is very pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-eighth of the length of the body: the legs are pale yellow and moderately long; the tarsi are black.

Found with the preceding species, in the autumn, near Newcastle by Mr. Hardy.'

No specimens are indicated in the Catalogue, and none identifiable with *confusa* have been found in the Collections.

It is probable, as Theobald (1927) suspected, that this is *Aphis scabiosae* Schrank, 1801 *non* Scopoli, 1763. According to Börner (1952) *scabiosae* Scopoli is a synonym of *rosae* Linnaeus, so that *scabiosae* Schrank cannot stand. This leaves *confusa* Walker as the earliest available name.

Aphis conjuncta Walker = ***Amphorophora rubi*** (Kaltenbach)

1848 *Zoologist*, 6, 2220.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1013.

Recorded with various other species on *Lycopsis arvensis*, and described as follows:

'The wingless viviparous female. The body is bright yellow, oval, convex, smooth, of moderate size, and rather slender: the antennae are pale yellow and longer than the body; the tips of the joints are black: the eyes are very dark red or almost black: the rostrum and the tubes are pale yellow, with black tips, and the latter are as long as one-fourth of the body: the legs are very long; the tarsi and the tips of the tibiae are black: the antennae and the legs are somewhat bristly.'

The Catalogue indicates two specimens, but adds no further details. No specimen named *conjuncta* has been found, but among those believed to have been collected from *Lycopsis* (see *Lycopsis* Group) there is one at least which agrees reasonably well with the description of *conjuncta*. This is an oviparous female of *Amphorophora rubi* (Kaltenbach), named '*lycopsidis*' in the Dry Collection, and mounted by Laing with various others. Among the latter is an apterous viviparous female of *Acyrtosiphon malvae* (Mosley) which could represent the second specimen indicated in the Catalogue, although it fits the description less well. The first-mentioned specimen is therefore selected as type of *conjuncta*. (B.M. 530.)

Aphis consona Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxvi.

1852 *List Homopt. Ins. Brit. Mus.* 4, 1019.

Recorded from *Prunus spinosa* and described as follows:

'The winged viviparous female. The body is black, shining, stout, plump, of moderate size, slightly covered beneath with a gray bloom: the abdomen is dark dull red beneath, and sometimes its back is very dark green: the antennae are black and rather more than half the length of the body: the rostrum is black, green towards the base: the tubes are black and about one-fifth of the length of the body: the legs are black; the thighs at the base, and the shanks excepting their tips, are dull green: the wings are colourless; the squamulae are pale yellow; the stigmata are pale brown; the veins are brown. While a pupa it is short, broad, and nearly elliptical, with a brassy tinge on the back, slightly covered beneath with a white bloom,

which also extends above in a transverse band: there is a pale red spot at the base of each tube: the rudimentary wings are pale green; their tips and the legs are black.

Found at the end of April.'

No specimens are indicated in the Catalogue and none named *consona* have been found. The data labels on Walker's slides show that he made numerous collections of aphids from sloe, but only two slides bear the date 'April' and neither contains alatae. In view of the lack of positive evidence it is proposed to regard *consona* as a *nomen dubium*.

Aphis consors Walker = ***Myzus persicae*** (Sulzer)

1848 *Zoologist*, 6, 2218.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1011.

This is one of five species recorded from *Cynoglossum officinale* and described as follows:

'*The wingless viviparous female*. The body is dark brown, dull, small, elliptical, convex: the antennae are yellow, with black tips, and about half the length of the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are dull yellow and about one-eighth of the length of the body: the legs are yellow and rather short: the tarsi and the tips of the tibiae are black.

The winged viviparous female. The body is black and small: the abdomen is dull green, with a row of black spots on each side: the antennae are black and as long as the body; the base of the third joint is pale yellow: the rostrum is pale yellow, with a black tip: the legs are black; the thighs are pale yellow towards the base; the tibiae are yellow, with black tips: the wings are colourless; the squamae and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

Near Fleetwood, in the beginning of October, with the four preceding species.'

The Catalogue indicates two specimens and adds details of wing venation, but no specimens so named have been found. Nevertheless, among the specimens believed to have been collected from *Cynoglossum* (see *Cynoglossum* Group, p. 52) are an ovipara of *Schizaphis rufula* (Walker) (syn. *S. geijskesi* H.R.L.) which agrees fairly well with the description of the aptera of *consors*, and an alate viviparous female of *Myzus persicae* (Sulzer) which agrees rather less well with the description of the alata. The additional details of wing venation given in the Catalogue do, however, agree better with this specimen than with any other alata in the sample, and it is proposed to select it as type of *consors*. (B.M. 283.)

Aphis conspersa Walker = ? ***Aphis confusa*** Walker

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1023.

Recorded, together with *Aphis confusa*, from *Scabiosa arvensis*, and described as follows:

'*The wingless viviparous female*. The body is small, oval, slightly convex, smooth, shining, pale yellow, sprinkled with pale red spots: the antennae and the rostrum are pale yellow, with black tips, and the former are less than half the length of the body: the eyes are black: the tubes are yellow, with black tips, and are less than one-twelfth of the length of the body: the legs are pale yellow and rather short; the knees and the tarsi are darker.'

No specimens are indicated in the Catalogue, and none named *conspersa* occur in the Collections. It may be, as Börner (1952, p. 90) surmised, that *conspersa* is the summer form of *confusa*.

Aphis consuetta Walker = **Macrosiphum (Sitobion) avenae** (Fabricius)

1848 *Zoologist*, 6, 2219.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Recorded, with some other species, from *Lycopsis arvensis*, in autumn near Fleetwood, Lancashire, and described as follows:

'The oviparous wingless female. The body is oval, convex, smooth and shining, dull green, of moderate size: there is a broad brown band along the back of the abdomen, with a row of black dots on each side: the antennae are black and longer than the body: the eyes are dark red: the rostrum is green: its tip is black: the tubes are black and about one-fifth of the length of the body: the tip of the abdomen is pale green: the legs are long and pale yellow; the thighs from the middle to the tips, the tarsi and the tips of the tibiae are black; the hind tibiae from the base to the middle are dull yellow and slightly dilated.'

The Catalogue indicates two dry specimens. In the Dry Collection there were originally ten specimens over the name *consuetta* (now mounted), comprising the following four species:

Metopolophium festucae (Theobald), al. viv. female;

Macrosiphum (Sitobion) avenae (Fabricius), 6 larvae;

Schizaphis rufula (Walker) (syn. *S. geijskesi* H.R.L.), apt. male;

Aspidaphis adjuvans (Walker), 2 oviparae.

These specimens are believed to have formed part of the sample of aphids collected from *Lycopsis arvensis*, and their identity is discussed under *Lycopsis* Group (p. 98). There are good reasons for believing that the types of *consuetta* are two oviparous females of *M. (S.) avenae* which had been placed over the name *lycopsidis* in the Dry Collection. One of these has been marked lectotype (B.M. 532).

Aphis consumpta Walker = **Brachycaudus helichrysi** (Kaltenbach)

1849 *Zoologist*, 7, app. liv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1027.

Recorded from *Digitalis purpurea* near Carlisle in late November and described as follows:

'The wingless viviparous female. The body is very small and short, broad and convex, oval, shining, pale dull yellow: the antennae are pale yellow, black towards the tips, and hardly half the length of the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow, with black tips, and not more than one-twentieth of the length of the body: the legs are pale yellow, and rather short: the knees, the tarsi and the tips of the tibiae are black.'

No specimens are indicated in the Catalogue, and none named *consumpta* have been found. The description is consistent with the diagnoses of Theobald (1929, p. 329) and Börner (1952, p. 106), who both regarded *consumpta* Walker as a synonym of *helichrysi* Kaltenbach.

Aphis contermina Walker = **Lipaphis erysimi** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Walker recorded *contermina* from *Cakile maritima*, but gave no date or locality. However, the description of *contermina* is followed by that of *redundans*, from *Crambe maritima*, which was

found in autumn, near Newcastle, and it is likely that both species were collected at the same time. *A. contermina* is described as follows:

'*The wingless viviparous female.* The body is small, oval, rather flat, pale brown, velvet-like, covered (especially beneath) with a white bloom: there are dark bands on the back, interrupted in the middle and ceasing towards the hind part of the body: the antennae are black, brown at the base, and about half the length of the body; the fourth joint is shorter than the third; the fifth joint is much shorter than the fourth; the sixth joint is much shorter than the fifth; the seventh joint is nearly as long as the fourth: the rostrum is pale yellow; its tip and the eyes are black: the tubes are dull yellow with black tips, and about one-eighth of the length of the body: the legs are dull yellow and rather short; the coxae are brown; the knees, the tarsi, and the tips of the tibiae are black.

Var. ?—The body is broad, dull, dark brown: the antennae are black and more than half the length of the body: the rostrum is brown with a black tip: the legs are brown and rather long; the knees, the tarsi and the tips of the tibiae are black.'

No specimens are enumerated in the Catalogue. In the Dry Collection there were five specimens named *contermina*, now mounted: they are three oviparous females of *Lipaphis erysimi* (Kaltenbach), and an apterous viviparous female and nymph of *Myzus persicae* (Sulzer). The description agrees well with *L. erysimi*, and one of Walker's oviparae has therefore been designated lectotype (B.M. 241). The specimens of *Myzus persicae* are probably *redundans* (see p. 115).

Theobald (1926, p. 365) repeated Walker's description of *contermina* and, having examined Laing's mount of an ovipara from the Dry Collection, added further details and a figure. On account of what he believed to be its close affinity with *Myzus cerasi* (Fabricius) he placed *contermina* in the genus *Myzus*.

Hille Ris Lambers (1933, p. 176) was apparently the first to realise that *contermina* Walker belonged in the genus *Lipaphis*, and later (1948, p. 280) he identified it with *erysimi* Kaltenbach.

Aphis convecta Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxvii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1020.

Recorded from *Prunus domestica* in May, and described as follows:

'*The wingless viviparous female.* The body is oval, slightly convex, grass-green: the antennae are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the feet and the tips of the shanks are brown.'

There are no specimens identifiable with *convector* in any of the Walker Collections. The description is very similar to many other of Walker's descriptions of species which are known to be *helichrysi*, and *convector* is here regarded as a synonym of that species.

Aphis conviva Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxvi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1019.

Recorded from *Prunus spinosa*, near Lancaster in late October, and described as follows:

'*The wingless viviparous female.* The body is oval, short, convex, yellow: the antennae are dull yellow, black towards the tips, and much shorter than the body: the rostrum is pale

yellow; its tip and the eyes are black: the tubes are pale yellow with black tips and about one-tenth of the length of the body: the legs are also pale yellow; the tips of the thighs and of the tibiae are darker; the knees and the tarsi are black.'

No specimens of *conviva* are indicated in the Catalogue, and no types exist. The description, like that of the foregoing species, strongly suggests *helichrysi*, and *conviva* is placed as a synonym of that species.

Aphis crataegaria Walker = **Ovatus crataegarius** (Walker)

- 1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 6, 46: *Aphis crataegaria*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 994: *Aphis crataegaria*; 1037: *Aphis melissae*; 1045: *Aphis menthae*.
- 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 120: *Siphonophora menthae*.
- 1912 Goot, P. van der, *Tijdschr. Ent.*, 55, 64: *Myzus mespili*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 134: *Phorodon menthae*; p. 136: *Ovatus mespili*.
- 1920 Theobald, F. V., *Bull. ent. Res.*, 11, 153: ? *Myzus mespiliella*.
- 1926 Börner, C., in Abderhalden, *Handb. biol. ArbMeth.*, Abt. 9, 1(2), 227: *Phorodon crataegi*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 364: *Phorodon mespili*.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 206: *Aphis crataegella* partim.
- 1947 Hille Ris Lambers, D., *Zool. Meded.*, 28, 306: *Ovatus menthae*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 122: *Ovatus crataegarius*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 182: *Ovatus crataegarius*.

Originally described as follows:

'*The viviparous wingless female.* The body is oval, convex, yellowish green, smooth, shining: the feelers are pale yellow, slender, setaceous, brown towards the tips, longer than the body: the eyes are red: the mouth is pale yellow with a brown tip: the nectaries are yellow with brown tips, and about one-fourth of the length of the body: the legs are pale yellow, long and slender; the feet and the tips of the shanks are brown: when young it is grass-green, paler beneath: the head is yellowish: the feelers are about half the length of the body, and the nectaries are one-fifth of its length; their tips are brown. Before the end of April.

The viviparous winged female. The body is rather large and grass-green: the head and the disc of the chest and that of the breast are reddish brown: there is a row of black spots on each side of the abdomen: the eyes and the feelers are dark brown, and the latter are a little longer than the body: the mouth is pale green with a brown tip: the nectaries are pale green, and as long as one-fourth of the body: the legs are long, and pale yellow; the feet, and the tips of the thighs and of the shanks are brown: the wings are colourless; the wing-ribs are pale yellow; the brands are very pale brown; the veins are brown.

1st var. The feelers and the eyes are black, and the former are dull green at the base: the tip of the mouth is black: the legs are pale green; the knees, the feet, and the tips of the shanks are black: the wing-ribs are pale green.'

Although the Catalogue indicates fifteen balsam mounts, only five slides containing this species have come to light, and only one of these bears the name *crataegaria* in Walker's handwriting. This is no. 110 in the National Museum of Ireland Collection, and contains a single alata—

designated type of *crataegaria*—with six last-stage nymphs and one larva. The slide label bears the data: 'Hawthorn. Southgate. July 28—[18]47.' to which had been added (apparently) in very small script at the top, 'Crataegaria'.

LECTOTYPE. Alate viviparous female.

N.M.I. 110. Fig. 8

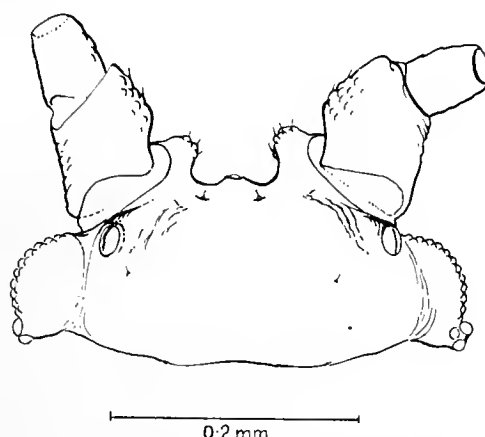


Figure 8. *Ovatus crataegarius* (Walker), lectotype, alate viviparous female, N.M.I. 110. Head.

Colour and Morphology: body length: 2.11 mm. Head smooth, dusky with frons and areas around ocelli darker. Ocelli large and prominent. Lateral frontal prominences rounded, rugose, projecting slightly inwards, with 3–4 rather stout short blunt hairs; first antennal joints with slightly protruding rugose areas on inner sides, about twice the diameter of the second joints. Antennal length: 2.32 mm.; III: 0.50, IV: 0.40, V: 0.36, VI: 0.14 + 0.73 mm.; third joint more or less cylindrical, imbricated, dusky grey with pale base, and with 31 and 34 secondary rhinaria; fourth with 8 and 7, fifth with 1 and 2; processus terminalis becoming paler towards the apex; antennal hairs short (0.01 mm.), blunt. Rostrum scarcely reaching second coxae, ultimate joint rather long (0.14 mm.), nearly cylindrical, with at least 2 secondary hairs. Wing veins with slightly clouded borders. Legs rather long and slender; femora dusky with pale bases, imbricate, with sparse short hairs; tibiae slightly expanded at apices, with stiff spiny hairs up to 0.03 mm.; tarsi and apices of tibiae dark; second joint of hind tarsus: 0.11 mm.; first tarsal joints with 3, 3, 3 hairs. Abdomen pale, membranous. Siphunculi pale, faintly dusky on apical half, cylindrical, curved slightly inwards, with slightly expanded bases, faintly imbricated, with 1 or 2 coalescent striae behind the well-developed flange, 0.33 mm. Cauda conical, scarcely constricted, with 7 hairs, 0.14 mm.

There are two species of *Ovatus* which normally use *Crataegus* (and *Mespilus*) as primary host and migrate to *Lycopus* and *Mentha* respectively. They differ mainly in the numbers of secondary rhinaria on the alate antenna, the species migrating to *Lycopus* having many more than that found on *Mentha*. Walker's type of *Ovatus crataegarius* is the second of these species, with lower rhinarial numbers. The other is *O. insitus* (Walker).

Theobald (1926, p. 280), in his description of *Phorodon crataegarium*, misinterpreted Walker's species. Despite a statement (p. 281) which shows that he had examined Walker's type, and his claim to have described Walker's specimens in Dublin, his description unquestionably refers to *Ovatus insitus*. Theobald believed that Walker's slides labelled *crataegina* (see below) in the British Museum and Hope Department collections also contained the same species. These slides in fact contain both *crataegarius* and *insitus*, and it seems likely that Theobald based his

description of the alata on a specimen of *insitus*, named *crataegina*, in the B.M. collection (no. 280). Thus *crataegarius* Theobald *non* Walker becomes a synonym of *insitus* Walker. Börner (1952, p. 122) applied the name correctly. *Aphis melissae* Walker, which Börner recorded as a distinct species, appears to be *O. crataegarius*.

Aphis crataegina Walker MS

Three slides exist bearing the name *crataegina* in Walker's hand, but there is no published description of this species. The slides contain *Ovatus insitus* (Walker) (B.M. 280), and *Ovatus crataegarius* (Walker) (B.M. 281 and H.D. 46). The B.M. slide no. 281 bears the same date and locality as the type of *crataegarius* and the specimens may be regarded as paratypes. It seems probable, as Theobald supposed (1926, p. 281), that Walker changed the name from *crataegina* to *crataegaria* but omitted to alter all his slide labels accordingly.

Aphis cynoglossi Walker = ***Amphorophora rubi*** (Kaltenbach)

1848 *Zoologist*, 6, 2217.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1010.

Originally described from *Cynoglossum officinale*, near Fleetwood, Lancashire, in October, and described as follows:

'The winged viviparous female. The body is pale greenish yellow and of moderate size: the crown of the head is greenish brown: the disk of the thorax above and below is dark brown: there is a row of small black spots along the back of the abdomen, and a few black dots on each side: the antennae are black, and much longer than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-fourth of the length of the body: the legs are long and pale yellow; the tarsi, and the tips of the thighs and of the tibiae, are black: the wings are colourless; the squamulae and the costal veins are pale yellow; the stigmata are very pale brown; the other veins are brown.'

The Catalogue indicates one specimen and gives details of wing venation. The type of *cynoglossi* appears to be an alate male of *Amphorophora rubi* (Kaltenbach), one of a number of specimens, placed over the name *cynoglossi* in the Dry Collection, which are believed to represent Walker's species recorded from *Cynoglossum* (see below). The description could well apply to *A. rubi*, and the wing venation agrees with the details given in the Catalogue. (B.M. 282.)

Cynoglossum Group

Walker (1848, *Zoologist*, 6, pp. 2217-8) described five new species under the heading 'Aphides on the Hound's-tongue (*Cynoglossum officinale*)': *Aphis cynoglossi*, *A. socia*, *A. particeps*, *A. sodalis*, and *A. consors*. The Catalogue, which lists them in the same order, indicates the presence at that time in the Collections of from one to four specimens of each species, and adds details of wing venation for three species. In the Collection there are four slides, mounted by Laing, containing a total of fourteen specimens, all originally named *Aphis cynoglossi* in the Dry Collection, and comprising five different species. As the Collection contains no other specimens bearing evidence of having been collected from *Cynoglossum*, it seems reasonable to suppose that the specimens named *cynoglossi* may represent most if not all of the original sample. This is supported by the fact that the Catalogue indicates a total of twelve specimens for the five species. Furthermore, a comparison of the specimens with the original descriptions enables most of them to be assigned to Walker's species with a fair degree of certainty. The following analysis emerges:

A. cynoglossi (alate viv. fem. described: 1 specimen indicated): *Amphorophora rubi* (Kaltenbach), alate male (p. 52).

A. socia (alate viv. fem. described: 1 specimen indicated): *Brachycaudus helichrysi* (Kaltenbach), alate male (p. 123).

A. particeps (apterous viv. fem. described: 4 specimens indicated): *Myzus persicae* (Sulzer), apt. viv. fem., 3 larvae (p. 103).

A. sodalis (apterous viv. fem. described, also 'pupa': 4 specimens indicated): *Acyrtosiphon malvae* (Mosley), apt. male; *Myzus persicae* (Sulzer), 3 nymphs (p. 123).

A. consors (alate and apterous viv. females described: 2 specimens indicated): *Myzus persicae* (Sulzer), alate viv. fem.; *Schizaphis rufula* (Walker), ovipara (p. 47).

It will be seen that this list accounts for all twelve of the specimens indicated in the Catalogue, although two from among those labelled *cynoglossi* in the Collection are left over. These are a nymph of *Brachycaudus helichrysi* and an apterous viviparous female of *Myzus persicae*. It is possible that the former may be Walker's type of *adjecta* (p. 20), which he also recorded from *Cynoglossum*. The descriptions of the alatae of *socia* and *consors* do not agree in all particulars with *helichrysi* and *persicae*, and the specimens chosen as types have in these cases been allocated on the evidence of their wing venation, which agrees well with details given in the Catalogue.

Aphis cyperi Walker = **Thripsaphis (Trichocallis) cyperi** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 45: *Aphis cyperi*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 953, 1168: *Aphis cyperi*.
- 1921 Laing, F., *Ent. mon. Mag.*, 57, 120: *Thripsaphis cyperi*.
- 1921 Mordvilko, A. K., *Bull. Petrograd Div. Sta. Protect. Plants from Pests*, 3(3), 58: *Allaphis caricis*.
- 1925 Davidson, J., *A List of British Aphides*, p. 26: *Thripsaphis cyperi*.
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 67: *Thripsaphis cyperi*.
- 1930 Börner, C., *Arch. klass. phylog. Ent.*, 1 (2), 127: *Trichocallis (Allaphis) caricis*.
- 1939 Hille Ris Lambers, D., *Zool. Meded.*, 22, 108: *Thripsaphis cyperi*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 71: *Thripsaphis cyperi*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 64: *Trichocallis caricis*.
- 1952 Hille Ris Lambers, D., *Medd. Grønland*, 136, p. 26: *Thripsaphis (Trichocallis) cyperi*.
- 1954 Quednau, W., *Mitt. biol. ZentAnst. Berl.*, 78, 39: *Trichocallis cyperi*.
- 1956 Hille Ris Lambers, D., *Tijdschr. Ent.*, 98(4), 244: *Thripsaphis (Trichocallis) cyperi*.

Originally described as follows:

The viviparous wingless female. The body is spindle-shaped, dull green, and rather flat: the feelers are brown, setaceous, and three-fourths of the length of the body; the fourth joint is about half the length of the third; the fifth is as long as the fourth; the sixth is more than half the length of the fifth; the seventh is much longer than the sixth: the front is convex: the nectaries do not rise above the surface of the abdomen: the legs are yellow, and rather short; the feet and the tips of the shanks are black; the latter are straight.

The viviparous winged female. In colour like the wingless female, but the head and the disc of the chest are brown: the feelers are black, and as long as the body: the wings are colourless, rather long and narrow; the veins and the wing-brands are brown; the wing-vein begins to widen into the brand just after half the length of the wing; the brand is long and narrow, and the angle at its tip is very obtuse; the first and the second veins are nearly straight, remote at their source, but near each other at their tips; the third vein is obsolete at its source,

and is forked after one-third and again after two-thirds of its length; the fourth vein is very slightly curved.

Length of the body $1\frac{1}{4}$ line; of the wings $3\frac{3}{4}$ lines.

Found by Mr. Haliday on rushes in the autumn, near Belfast.'

The Catalogue (p. 1169) indicates a single specimen from Ireland, presented by A. H. Haliday. There are in fact three original Walker slides, containing five apterous viviparous females and three larvae, all with the legend 'Water Grasses. Belfast. Sept. 1—[18]47.' (B.M. 288, 289; H.D. 191.) All the specimens are incomplete and more or less badly preserved, and that chosen as lectotype is the best of this unsatisfactory series. Although these specimens do not include an alata, they are doubtless some of those sent by Haliday which Walker described. In addition to these, there are two apterae and an alata, mounted from the Dry Collection and very much better preserved, but labelled 'England', which excludes them from the type series. (B.M. 286, 287.)

LECTOTYPE. Apterous viviparous female. 'Cyperi. Water-grasses. Belfast. Sept. 1—[18]47.' B.M. 289.

Colour characteristics not discernible in this specimen. *Morphology*: body elongate, nearly linear, length: 2.56 mm. Frons with broad, rounded median protuberance with 2 hairs (bases only remaining), 2 broad, rather flat, only slightly raised protuberances above and on either side of the median one. Both antennae missing. Eyes rather small, triommatidia not projecting. Rostrum short, reaching scarcely beyond first coxae, ultimate joint triangular, apex blunt. (The apex of the rostrum is distorted and the length not measurable. The secondary hairs are not discernible.) Legs rather long, femora with sparse, short, acute hairs; tibiae slightly expanded apically, with fine, acute hairs up to 0.04 mm., cuticle with a finely granular ornamentation, present but less pronounced on femora and parts of the body also. First tarsal joints with 5 hairs. Second joint of hind tarsus: 0.19 mm. Empodial hairs fine, acute. Cuticle of abdomen sclerotic. Siphunculi present as pores on scarcely raised sclerotic cones, pore diameter: 0.03 mm. Eighth tergite broadly triangular, its apex rounded and almost covering the cauda below it. Caudal knob nearly rectangular, or trapezium-shaped; 0.09 mm. long, hairs missing. Anal plate strongly bilobed.

In a note on the synonymy, Hille Ris Lambers (1956) pointed out that the species which Börner (1952) recorded as *cyperi* Walker has spathulate empodial hairs and therefore cannot be *cyperi*, whose empodial hairs are acute. *Allaphis caricis* Mordvilko, which Börner used as type of his genus *Trichocallis* (1930), is a synonym of *cyperi* Walker. Thus *cyperi* becomes type of *Trichocallis* which is here regarded as a subgenus of *Thripsaphis* Gillette, 1908.

Aphis deposita Walker = ***Myzus persicae*** (Sulzer)

1848 *Zoologist*, 6, 2250.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Originally recorded from *Prunus domestica*, and (under the title '*Aphis* —?') described as follows:

'*The winged viviparous female*. The body is black: the fore border, the hind border, and the under-side of the prothorax are reddish yellow, as is also the abdomen, which has a black disk and a row of black spots on each side: the antennae are much longer than the body: the rostrum is yellow, with a black tip: the tubes are dull yellow, slightly spindle-shaped, and nearly one-fourth of the length of the body: the thighs are pale yellow, black from the middle to the tips; the tibiae are dark yellow; their tips and the tarsi are black; the squamulae and the costal veins are pale yellow; the stigmata are pale brown; the other veins are brown.

Abundant near Lancaster, in the middle of October.'

A reference in the Catalogue to his earlier paper (1848) shows that Walker applied the name *deposita* to one of two unnamed species of *Aphis*, the alatae of which he described under the heading 'Aphides on the Plum'. The Catalogue adds details of wing venation and indicates two dry specimens.

In the Dry Collection, over the name *pruni* F., were two specimens with a label 'Plum' in Walker's hand. They are an alate viviparous female and an alate male of *Myzus persicae* (Sulzer), and agree reasonably well with the first of the two species described in the 1848 paper. It is therefore assumed that these specimens are *deposita*, and the alate female is designated lectotype (B.M. 724).

Aphis derelicta Walker = ***Myzus persicae*** (Sulzer)

1849 *Zoologist*, 7, app. 1.

1852 *List Homopt. Ins. Brit. Mus.* 4, 1026.

Originally recorded, together with *Aphis dianthi* (i.e. *Myzus persicae*) from *Calystegia soldanella*, and described as follows:

'The wingless viviparous female. The body is small, yellow, nearly linear, rather narrow and flat: there are two pale green stripes on the back: the limbs are pale yellow: the antennae are black towards the tips, and as long as the body: the tip of the rostrum and the eyes are black: the tubes have black tips, and are nearly as long as one-fifth of the body: the legs are moderately long; the knees, the tarsi and the tips of the tibiae are black.

Var. 1. The body is pale red.

The winged viviparous female. While a pupa it is pale red, pale yellow beneath towards the head: the legs are very pale red; the tarsi are black. The winged insect is black: the abdomen is dark green: the antennae are a little longer than the body: the rostrum is pale dull yellow, with a black tip: the tubes are dull green, and nearly one-fourth of the length of the body: the tibiae, excepting their tips, are yellow: the wings are colourless and much longer than the body; the squamulae are pale yellow; the stigmata and the veins are brown.'

The Catalogue adds details of wing venation and indicates five specimens. No specimens so named exist, and none have been found with data associating them with this host plant. The description could apply to *Myzus persicae*, and this interpretation is supported by the fact that Walker described what he believed to be *persicae*, together with *derelicta*, from the same host, and the two descriptions are closely similar.

Aphis despecta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. liii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1026.

Originally recorded from *Epilobium* sp. at the end of June, and described as follows:

'The wingless viviparous female. The body is small, nearly elliptical, rather flat, grass-green, not shining, paler towards the head: the antennae are pale yellow, with brown tips, and are much shorter than the body: the eyes are black: the rostrum is pale green, with a black tip, and reaches beyond the middle coxae: the tubes are yellowish white, with brown tips, and are as long as one-sixth of the body: the legs are pale yellow and moderately long; the knees, the tarsi and the tips of the tibiae are black.

The winged viviparous female. While a pupa it much resembles the wingless *Aphis* in colour. The winged insect is deep velvet-like black: the borders of the prothorax and the

abdomen are dark green; the antennae are black, shorter than the body, rather stout till near their tips: the eyes are black: the rostrum is dull green, with a black tip: the tubes are black, and as long as one-sixth of the body: the legs are dull yellow; the four hinder thighs excepting the base, the knees, the tarsi and the tips of the tibiae are black: the wings are colourless and longer than the body; the squamulae are pale green; the stigmata and the veins are brown.'

The Catalogue indicates no specimens and none named, or identifiable with, *despecta* have been found.

Börner (1952, p. 79) used the name *despecta* Walker for a species associated with *Epilobium parviflorum* (*molle*), *E. palustre*, rarely *E. montanum*, and possibly *E. virgatum* (*obscurum*), and gave the distribution as Thuringen, Oberfranken, Burgenland, Aachen, and possibly Portugal. There is no evidence to connect Börner's species with Walker's, and *despecta* is here regarded as a *nomen dubium*.

Aphis detracta Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1020.

Originally recorded from *Prunus domestica* and described as follows:

'The winged viviparous female. The body is black, small and shining: the antennae are shorter than the body: the rostrum is dull green with a black tip: the abdomen is dark green with a row of black spots on each side; the disk is black, and sometimes the spots are confluent and occupy the whole back: the tubes are black and as long as one-eighth of the body: the legs are dull yellow; the thighs excepting the base, the tarsi and the tips of the tibiae are black: the wings are colourless and very much longer than the body; the squamulae are pale green or pale yellow; the stigmata are pale brown; the veins are brown: the legs are sometimes quite black, with the exception of the fore thighs, which are dull pale yellow at the base. While a pupa it is nearly elliptical, grass-green, and sometimes varied with red: the antennae are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the tarsi and the tips of the tibiae are brown.

Found in May.'

The Catalogue adds nothing to the original description and indicates no specimens. In the Dry Collection, however, over the name *pruni* there were a number of specimens not accounted for in the Catalogue, which for *pruni* indicates a single dry specimen. Among these surplus specimens are six alate viviparous females of *Brachycaudus helichrysi* (Kaltenbach) to which Walker's description of *detracta* applies well enough. One of these specimens has been marked type of *detracta* (B.M. 725).

Aphis devecta Walker = ***Dysaphis devecta*** (Walker)

1849 Walker, F., *Zoologist*, 7, app. xxxviii: *Aphis devecta*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1020: *Aphis devecta*.

1944* Hille Ris Lambers, D., *Fruitteelt*, 34th Year, No. 21: *Sappaphis devecta*.

1945 Hille Ris Lambers, D., *Tijdschr. PlZeikt.*, 51(3), 57: *Sappaphis devecta*.

1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 99: *Dysaphis devecta*.

* It should be explained that the name *Sappaphis devecta* was first applied in a paper on aphids of fruit, of which the first three parts appeared in 1944, but the fourth, containing the reference to *devecta*, was never published.

- 1955 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, **106**(7), 296: *Sappaphis devecta*.
 1956 Stroyan, H. L. G., *Plant Pathology*, **5**, 93: *Sappaphis devecta*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. d. PflKrankh.*, 5th Ed., **5**, 148: *Dysaphis devecta*.
 1957 Stroyan, H. L. G., *The British Species of Sappaphis Matsumura*, p. 3 and passim: *Sappaphis (Dysaphis) devecta*.

Originally recorded from *Pyrus malus* in June, and described as follows:

'The wingless viviparous female. The body is dull green, short, very plump, covered with a white bloom: the antennae are brown, dull green at the base, and shorter than the body: the eyes are black: the mouth is dull green with a brown tip: the nectaries are black and as long as one-tenth of the body: the legs are pale yellow and rather long; the feet, and the tips of the shanks and of the four hinder thighs, are black.

First Var. The body is very dark green: the thighs are black, pale yellow at the base.

Found in the beginning of June.'

The Catalogue indicates no specimens, and no material named *devecta* or identifiable with the description has come to light.

Hille Ris Lambers (1944)* recognized that Walker's description of *devecta* could be applied to one of the aphid species which make red leaf-galls on apple, and redescribed it (1945) as *Sappaphis devecta* (Walker). The species has since been found in various parts of England, including the London area.

Aphis diminuta Walker = ? ***Brachycaudus helichrysi*** (Kaltenbach)

- 1850 *Zoologist*, **8**, app. ciii.
 1852 *List Homopt. Ins. Brit. Mus.*, **4**, 1028.

This is one of five species recorded from *Senecio vulgaris*, and described as follows:

'The winged viviparous female. The body is black, a little smaller than that of *A. Dianthi*: the abdomen is yellow from the base till near the middle: the antennae are black, and much shorter than the body: the rostrum is pale yellow, with a black tip: the tubes are black, and about one-tenth of the length of the body: the legs are pale yellow; the tarsi, and the tips of thighs and of the tibiae are black: the wings are colourless; the squamulae and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

In the autumn.'

It seems likely that this is another instance in which Walker described as distinct species a number of specimens but omitted to label them individually, leaving the whole sample under the first name in the series; in this case *apposita* (see p. 27). This sample, however, contains no alatae and therefore no specimen which will fit the description of *diminuta*, of which only the alata is described. From the description it seems probable that *diminuta* is *Brachycaudus helichrysi* (Kaltenbach).

Aphis diphaga Walker = ? ***Aphis diphaga*** Walker (Börner, 1952)

- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1042: *Aphis diphaga*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **2**, 120: *Aphis diphaga*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 67: *Doralis diphaga*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 87: *Cerosipha diphaga*.

* See footnote on p. 56.

This is one of the seven species of *Aphis* associated with *Epilobium* that Walker described as new (see p. 63).

'Aptera. Parva, ovata, convexa, obscure flava, viridi varia; antennae flavae, apice nigrae, corpore paullo longiores; cornicula viridia, corporis quadrante vix breviores; pedes longi, flavi, tibiis apice tarsisque nigris.

Alata. Nigra vel nigro-fusca, nitens, linearis, pedes flavi; femoribus tibiisque apice tarsisque nigris; alae limpidae.

The viviparous wingless female. Small, oval, convex, smooth, not shining, pale yellow, and mottled with green: feelers pale yellow with black tips, a little longer than the body: mouth pale yellow with a black tip: nectaries dark green, about one-fourth of the length of the body: legs long, pale yellow; feet and tips of the shanks black.

The viviparous winged female. Linear, shining, black or very dark brown: feelers and nectaries black: legs pale yellow: feet, tips of the thighs and shanks black: wings nearly twice the length of the body; wing-ribs and rib-veins pale yellow; brand and veins very pale brown. On *Epilobium*.

England.'

The Catalogue indicates no specimens and no material identifiable with *diphaga* has been found in the Collections.

Theobald (1927) described the apterous viviparous female of what he believed to be *diphaga* Walker, which he found on *Epilobium* sp. at Wye, but the specimens on which he based his description do not appear to be in the Theobald Collection.

Börner (1952) applied the name *diphaga* to an aphid which feeds on the tips of the stems and undersides of the leaves of *Epilobium hirsutum* and *E. roseum*. Specimens believed to be this species have been collected in the London area and one or two other localities in England, and Börner's interpretation is tentatively accepted pending further research into this question.

Aphis dirhoda Walker = **Metopolophium dirhodum** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 372: *Aphis dirhoda* (migration).
- 1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 3, 43: *Aphis dirhoda* (description).
- 1850 Hardy, J., *N. Brit. Agri.*, 2, 707: *Aphis dirhoda*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 971: *Aphis dirhoda*.
- 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 132: *Siphonophora dirhoda*; 146: *Siphonophora longipennis*.
- 1885 Lichtenstein, J., *Les Pucerons. Monographie des Aphidiens.*, pp. 50, 113: *Siphonophora dirhoda*.
- 1900 Guercio, G. del, *Nuove Relaz. Staz. Ent. agr., Firenze* 1 (2), 167: *Siphonophora caianensis*.
- 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 238: *Macrosiphum dirhodum*.
- 1913 Theobald, F. V., *J. econ. Biol.*, 8, 118: *Macrosiphum longipennis*; 128: *Macrosiphum dirhodum*; 144: *Macrosiphum arundinis*; 145: *Macrosiphum graminum*.
- 1914 Davis, J. J., *Canad. Ent.*, 46, 123: *Myzus lycopersici*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 62: *Macrosiphum dirhodum*.
- 1916 Börner, C., and Blunck, H., *Mitt. (Kais.) biol. ZentAnst. Berl.*, 16, 27, 32: *Macrosiphum dirhodum*.
- 1916 Theobald, F. V., *Entomologist*, 49, 49: *Macrosiphum myrmecophilum*.
- 1919 Mordvilko, A. K., *Faune de la Russie, Ins. Hémipt.*, 1(2), 272: *Acyrtosiphon* (*Metopolophium*) *dirhodum*; 296: *Acyrtosiphon* (*Metopolophium*) *graminum*.
- 1919 Swain, A. F., *Univ. Calif. Publ. Ent.*, 3, 63: *Macrosiphum dirhodum*.

- 1921 Mordvilko, A. K., *Les Pucerons des Graminées*, Bull. Petrograd Div. Sta. Protect Plants from Pests, 3(3), 43: *Acyrtosiphon* (*Metopolophium*) *dirhodum*.
- 1922 Mordvilko, A. K., Bull. ent. Res., 13, 26: *Acyrtosiphon* (*Metopolophium*) *dirhodum*.
- 1925 Davidson, J., *A List of British Aphides*, p. 27: *Acyrtosiphon dirhodum*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 135: *Macrosiphum dirhodum*; 138: *Macrosiphum graminum*; 352: *Myzus myrmecophilus*; 354: *Myzus longipennis*.
- 1926 Börner, C., in Abderhalden, Handb. biol. ArbMeth., Abt. 9, 1(2), *Illinoia dirhoda*.
- 1928 Opmanis, K., Acta Univ. latv., 18, 396: *Macrosiphum dirhodum*.
- 1929 Mordvilko, A. K., Works appl. Ent., 14, 86, 89, 90: *Metopolophium dirhodum*.
- 1930 Judenko, E., Bull. ent. Pologne, 9, 164: *Metopolophium dirhodum*.
- 1931 Hottes, F. C., and Frison, T. H., Bull. Ill. nat. Hist. Surv., 19(3), 304: *Macrosiphum dirhodum*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, Handb. PflKrankh., 4th Ed., 5; 626: *Amphorophora dirhoda*.
- 1938 Goidanich, A., Boll. Ist. Ent. Univ. Bologna, 10, 337: *Amphorophora dirhoda*.
- 1942 Knowlton, G. F., Gr. Basin Nat., 3, 5: *Myzus haywardi*.
- 1945 Kloet, G. S., and Hincks, W. D., A Check List of British Insects, p. 63: *Metopolophium dirhodum*.
- 1947 Hille Ris Lambers, D., Temminckia, 7, 281: *Metopolophium dirhodum*.
- 1950 Börner, C., Neue Europäische Blattläusarten, Selbstverlag, p. 13: *Metopolophium dirhodum*.
- 1950 Martelli, M., Redia, 35, 318: *Macrosiphum* (*Goidanichiellum*) *dirhodum*.
- 1950 Stroyan, H. L. G., Trans. R. ent. Soc. Lond., 101, 93: *Metopolophium dirhodum*.
- 1952 Börner, C., Mitt. thuring. bot. Ges., Beiheft 3, 156: *Metopolophium dirhodum*.
- 1952 Palmer, M. A., Aphids of the Rocky Mountain Region, p. 302: *Macrosiphum dirhodum*.
- 1952 Stroyan, H. L. G., Entomologist, 85, 251: *Metopolophium dirhodum*.
- 1957 Bodenheimer, F. S., and Swirski, E., Aphidoidea of the Middle East, p. 272: *Metopolophium dirhodum*.
- 1957 Börner, C., and Heinze, K., in Sorauer, Handb. PflKrankh., 5th Ed., 5, 238: *Metopolophium dirhodum*.

Originally described (1849) as follows:

'This species feeds on the rose with *Aphis Rosae*, and is sometimes far more numerous than that species in the spring and in the autumn, but its appearance is less regular; it frequents various species of rose both wild and cultivated, such as *Rosa centifolia*, *R. canina*, *R. eglanteria*; and in the summer it migrates to different species of corn and grass (*Secale*, *Triticum*, *Avena*, *Hordeum*, *Bromus*, *Dactylis*, *Holcus*, and *Poa*), and it fixes itself on the blades of these plants, whereas *A. Avenae* prefers the flowers. *Aphidius Avenae*, an *Allotria*, *Asaphes aenea*, and *Megaspilus Carpenteri*, are its parasites, and these will be more particularly noticed in another part of these descriptions.

The viviparous wingless female. This sometimes rests through a severe winter under the rose-leaves without being injured, and begins to multiply very early in the spring: it is oval, and pale greenish yellow: the feelers have pale brown tips, and are about one-fourth of the length of the body: the eyes are dark red: the mouth and the nectaries are pale yellow with brown tips, and the latter are about one-sixth of the length of the body: the tip of the abdomen is brown: the legs are shorter and more slender than those of *Aphis Rosae*, and the feet are pale brown: it is also distinguished from that species by its paler colour, its shorter feelers, and its larger body; the two kinds may often be seen together on one rose-twigg, each surrounded by its respective little ones.

The front is prominent in the middle between the eyes: the tubercles on which the feelers

are seated are rather less developed than those of the preceding species; the fourth joint of the feelers is much shorter than the third; the fifth is shorter than the fourth; the sixth is not half the length of the fifth; the seventh is nearly as long as the third.

The viviparous winged female. While a pupa it much resembles the wingless female in colour: its wings are unfolded in April or May, and then it is pale green: the chest is buff; its lobes are pale brown: the feelers are brown, green at the base, and much shorter than the body; the fourth joint is shorter than the third, and the fifth is shorter than the fourth; the sixth is nearly half the length of the fifth; the seventh is a little shorter than the third: the eyes are dark brown: the mouth has a brown tip: the nectaries are about one-sixth of the length of the body: the legs are pale yellowish green and rather long; the feet and the tips of the thighs and of the shanks are brown: the wings are colourless, and nearly twice the length of the body; the wing-ribs and the rib-veins are pale yellowish green; the veins are brown.

1st var. The feelers are black, and as long as the body: the nectaries are pale green with black tips, and about one-fifth of the length of the body. In the autumn.

2nd var. Pale yellowish green: the lobes of the chest and the breast are dark gray: the feelers are green at the base, and longer than the body: the other limbs are pale yellow: the tip of the mouth, the eyes, and the tips of the nectaries are black, and the latter are nearly one-fourth of the length of the body: the knees, the feet, and the tips of the shanks are black: the wing-ribs and the rib-veins are pale yellow; the wing-brands are pale brown, and the other veins are brown. In the autumn, when the winged females abound on the rose-leaf, and each of them is surrounded by a group of its white or pale green little ones.

Variation in the wing-veins. The second vein is forked, but the third is undivided.

The oviparous wingless female. This species in its nuptial state is born of the winged female during October and some part of November, and is very delicate and pretty: it has a pale lemon colour: the head is almost white: the eyes are dark red: the limbs are white: the feelers are blackish towards their tips: the tip of the mouth and the tips of the nectaries are black, and the latter are as long as one-fifth of the body: the knees and the tips of the shanks are pale brown; the feet are black: the hind-shanks are sometimes pale brown.

1st var. Green. 2nd var. Pale straw-colour. 3rd var. Buff. 4th var. Light buff varied with pale red. 5th var. Rose-colour. 6th var. Saffron. 7th var. Orange.

The winged male. It pairs with the oviparous female in October and November, and is buff: the head, the disc of the chest and that of the breast are brown: the abdomen has a black line along the back and a row of black dots on each side: the feelers are black, dull buff at the base, and much longer than the body: the fourth vein is much shorter than the third; the fifth is hardly shorter than the fourth; the sixth is less than half the length of the fifth; the seventh is nearly as long as the third: the mouth is pale buff; its tip and the eyes are black: the nectaries are pale buff with black tips, and one-fifth of the length of the body: the legs, especially the thighs, are pale yellow; the knees, the feet, and the tips of the shanks are black; the wing-ribs and the rib-veins are pale yellow; the wing-brands are pale brown; the other veins are brown.

1st var. Pale orange: the head, the disc of the chest and that of the breast are black: the feelers are pale orange towards the base: the eyes are dark red: the nectaries are dull brown, and as long as one-fourth of the body; the thighs excepting the base are black.

2nd var. The nectaries are yellow with black tips.'

Walker's description of *dirhoda* is unusually full, and is for the most part accurate. His statement that the antennae of the aptera are 'one-fourth of the length of the body' is clearly an error: they are, in fact, three-fourths of the body length. His notes on the biology of this species show that he was the first to discover its migration from rose to grasses; indeed, he mentions this in a short note on the migration of aphids (1848) which was published in the year before the description of *dirhoda* appeared.

The Catalogue adds details of wing venation and indicates eighteen balsam mounts. Fourteen of these, labelled '*dirhoda*' by Walker, are still in existence (B.M. 300, 301, 303-308; H.D. 47, 250, 254, 255, 320; N.M.I. 2), and all contain *Metopolophium dirhodum*, collected from rose and from grasses on various dates between May and October, 1847. A few of these slides contain, in addition to *dirhodum*, one or more specimens of other species, e.g. *Sitobion fragariae* (Walker), but there are no sexuales of *dirhodum* among them, although the male and ovipara are described.

LECTOTYPE. Apterous viviparous female. '*dirhoda*. Corn. Southgate. June 30—[18]47.'

B.M. 305.

Colour: body and appendages almost colourless; antennae, legs, and siphunculi very slightly darker towards extremities. *Morphology*: body length: 2.68 mm. Head smooth; lateral frontal prominences short, divergent; cephalic hairs blunt, up to 0.02 mm. Antennal length: 2.10 mm.; III: 0.55, IV: 0.37, V: 0.33, VI: 0.14+0.51 mm. Third joint with a single small circular rhinarium near the base; all joints imbricated, the imbrications becoming progressively more strongly marked towards the distal extremities; antennal hairs short (0.01 mm.), blunt. Rostrum scarcely reaching second coxae, ultimate joint rather short (0.11 mm.), blunt, with 6 secondary hairs. Femora with sparse hairs, tibiae with rather stout, blunt hairs, more numerous on inner sides, up to about 0.03 mm.; first tarsal joints with 3 hairs; length of second joint of hind tarsus: 0.17 mm. Cuticle of tergum sclerotic, slightly rugose. Hairs short (0.015 mm.), blunt. Siphunculus (0.46 mm.) nearly cylindrical, very slightly wider at the base than at the apex, flange small, with 1 or 2 faint striae below it. Cauda (0.34 mm.) broadly conical, apex rounded, with a slight constriction one-third of its length from the base and 10 hairs.

Aphis dispar Walker: *nomen dubium*

1848 *Zoologist*, 6, 2251.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Recorded together with *Aphis diversa* from *Eryngium* sp. near Fleetwood, Lancashire, in October, and described as follows:

'*The wingless viviparous female*. The body is small, yellow, velvet-like, nearly linear or a little broader towards the tip of the abdomen, which is tinged with brown: the prothorax and the mesothorax are well-developed: the antennae are yellow, black towards the tips, and as long as the body: the eyes are red: the rostrum is pale yellow, with a black tip, and reaches the hind-coxae: the tubes are pale yellow, with black tips, and nearly one-fourth of the length of the body: the legs are pale yellow and very long; the thighs are pale green; the knees, the tarsi and the tips of the tibiae are black.'

No specimens are indicated in the Catalogue and none named *dispar* has been found in the Collections. Without further evidence it is impossible to establish the identity of this species.

Aphis dissita Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxiv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1017.

Originally recorded from *Lathyrus odoratus* and described as follows:

'*The winged viviparous female*. Of this very distinct species I have only seen one specimen, which has the appearance of a male; but it was found in the beginning of May. The body is black and shining: the antennae are slender and nearly as long as the body: the rostrum is black and does not reach the middle coxae: the tubes are as long as one-twelfth of the body:

the legs are dark brown or nearly black: the thighs are dull yellow towards the base: the wings are gray and twice the length of the body; the squamulae are dull yellow; the stigmata and the veins are dark gray.'

The Catalogue indicates two dry specimens and adds details of the venation of two 'varieties'. No specimens identifiable with *dissita* exist.

Börner (1952, p. 83) put *dissita* as a doubtful synonym of his *Pergandeida (Doralida) comosa*, but as Stroyan (1957, p. 330), in a note on *comosa* Börner, points out, 'Walker (1849) described his *dissita* from a single alate aphid (probably a vagrant) found on *Lathyrus odoratus*, and with legs dark brown or nearly black except for the bases of the femora, and the antennae nearly as long as the body. Alatae of *Pergandeida* have the tibiae to a greater or lesser extent pale, and the antennae are considerably shorter than the body; it is therefore rather improbable that *A. dissita* is a synonym of *comosa*, which lives on *Lathyrus pratensis* and *Melilotus albus*.'

Aphis diversa Walker: *nomen dubium*

1848 *Zoologist*, 6, 2251.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Recorded with *Aphis dispar* from *Eryngium* sp. near Fleetwood, Lancashire, in October, and described as follows:

'The wingless viviparous female. The body is small, oval, yellow, velvet-like, rather flat, slightly tinged with green: the antennae are pale yellow, black towards the tips, and a little more than one-fourth of the length of the body: the eyes are bright red: the rostrum is pale yellow, with a black tip: the tubes are pale yellow, with black tips, and as long as one-sixth of the body: the legs are pale yellow; the thighs are pale green; the tips of the tarsi are black.'

No specimens are indicated in the Catalogue and none identifiable with *diversa* have been found. As in the case of *dispar*, the identity of this species cannot be established from the available evidence.

Aphis egens Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1036.

'*Pallida et aptera vel nigra et alata; hujus thoracis segmentorum margines flavo-virides; abdomen flavo-viride, lateribus nigro maculatum, corniculis brevissimis; antennae corpore non longiores; pedes foem. alatae nigri, femoribus anticis tibiisque flavis.*

The viviparous wingless female. Bright lemon-colour, inclining to white beneath, oval, convex, very small, rather short: feelers black, as long as the body, yellow at the base: mouth pale yellow, with a black tip, nearly reaching the hind-hips: nectaries yellow, with black tips, hardly one-twelfth of the length of the body: legs pale yellow; knees, feet, and tips of shanks black.

Var. β . Yellowish white.

Var. γ . Saffron colour.

The viviparous winged female. Black: feelers shorter than the body: mouth dull yellow, with a black tip: fore border and hind border of fore-chest and fore-breast dull greenish yellow: abdomen dark yellowish green, with a row of black spots on each side: nectaries black, about one-twelfth of the length of the body: fore-thighs and shanks except their tips dull yellow: wing-ribs pale yellow; rib-veins yellow; branches pale brown; branch-veins brown.'

The Catalogue indicates no specimens, and no data are given of host plant or locality (beyond 'England'). No specimens named *egens* have been found. The identity of this species must remain undetermined.

Aphis egressa Walker = ***Myzus persicae*** (Sulzer)

1849 *Zoologist*, 7, app. xxxviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1020.

This is one of nine species recorded from *Prunus domestica*, and described as follows:

'*The winged viviparous female.* The body is black and of moderate size: the borders and the under-side of the prothorax are reddish, as is also the abdomen, which has a black disk and a row of black spots on each side: the antennae are black and much longer than the body: the rostrum is yellow with a black tip: the tubes are dull yellow, slightly spindle-shaped, and nearly one-fourth of the length of the body: the thighs are pale yellow, black from middle to the tips: the tibiae are dark yellow, their tips and the tarsi are black: the wings are colourless; the squamulae and the costal veins are pale yellow; the stigmata are pale brown; the other veins are brown.

Found near Lancaster, in the middle of October.'

The Catalogue indicates no specimens, and none named *egressa* have come to light. The description would apply well to *Myzus persicae*, as was realised by Laing, whose opinion Theobald quoted (1926, p. 327).

Walker's *Epilobium* Aphids

Walker recorded ten aphids associated with *Epilobium*, namely *Aphis epilobii* Kaltenbach, and the following species of *Aphis* which he described as new: *despecta*, *diphaga*, *epilobiina*, *pollinosa*, *praeterita*, *tincta*, and *triphaga*. There are also *epilobiaria* and *ovina*, both manuscript names without descriptions. The only species represented by named specimens of Walker's are *epilobii*, from *Epilobium* sp., *epilobiina*, *epilobiaria*, and *ovina*, all from *Chamaenerion angustifolium*. Examination of these specimens shows that *epilobiina* and *epilobiaria* are distinct from each other; *epilobiaria* and *epilobii* have some characters in common and others whose range of variation overlaps; while *ovina* appears to be the same as *epilobiina*. The main characters of these species, as shown by Walker's specimens, are tabulated below.

	epilobii	epilobiaria	epilobiina	ovina
Body length	1.29-1.74 (1.55)	1.79-2.46 (2.14)	1.17-1.74 (1.40)	1.07-1.39 (1.27)
Proc. term.	0.20-0.30 (0.25)	0.26-0.32 (0.29)	0.28-0.36 (0.32)	0.29-0.38 (0.32)
Base of VI	0.09-0.12 (0.10)	0.10-0.13 (0.12)	0.06-0.10 (0.09)	0.07-0.09 (0.07)
Whole rostrum	0.38-0.52 (0.41)	0.55-0.65 (0.60)	0.40-0.47 (0.43)	0.40-0.42 (0.41)
Ult. rost. jt.	0.11-0.13 (0.12)	0.15-0.18 (0.17)	0.11-0.12 (0.12)	0.10-0.12 (0.11)
Sec. rost. hrs.	4-8	6-10	2	2
Siphunculi	0.20-0.31 (0.27)	0.40-0.49 (0.45)	0.17-0.35 (0.29)	0.19-0.27 (0.23)
Cauda	0.12-0.20 (0.17)	0.25-0.28 (0.26)	0.12-0.17 (0.15)	0.14-0.16 (0.15)
Caudal hairs	10-13	13-22	5-7	6-7
Hd. tarsus II	0.075-0.090 (0.085)	0.11-0.12 (0.12)	0.10-0.11 (0.108)	0.085-0.110 (0.096)

(Measurements in millimetres. Figures indicate limits of variability in at least ten specimens, with means in brackets.)

The siphunculi are pale in *epilobii* and *epilobiaria*, dusky or dark (probably black in life) in *epilobiina* and *ovina*.

The species of *Aphis* associated with *Epilobium* have not yet been satisfactorily worked out, and until this has been done it cannot be said with certainty what Walker's specimens are. For the present it is assumed that his material named *epilobii* Kaltenbach was correctly identified, and that this is the variably coloured, usually greyish or bluish, slightly pulverulent species with pale siphunculi and hairy ultimate rostral joint, monoecious on *Epilobium montanum*. Börner (1952, p. 79) confused the issue somewhat by claiming that the name *Aphis epilobii* Kaltenbach, 1843, is preoccupied by *Aphis epilobii* Kittel, 1827 (which he believed to be a *Macrosiphum*), and he applied *praeterita* Walker to this species, putting *epilobii* Kaltenbach and *triphaga* Walker as synonyms. But in his memoir (1827, 'Sur les Pucerons, suivi de la description de quelques espèces nouvelles', *Mém. Soc. Linn. Paris*, 5, 133-155), Kittel made use of trinominals as well as binominals, which means that none of his names is now available.* *Aphis epilobii* Kaltenbach therefore stands as the correct name for the species associated with *Epilobium montanum*. It seems that Börner was also in error in identifying *praeterita* with *epilobii*, though probably correct in doing so with *triphaga*. *Aphis triphaga*, like *praeterita*, is unsupported by original material, but the description (p. 137) suggests the *E. montanum* species more strongly than does that of *praeterita*. The colour of *triphaga* is given as 'either black, dark olive-green, or dull red, always covered with white bloom', and the siphunculi are described as white, whereas *praeterita* is characterized as light green, with siphunculi pale green with brown tips, and there is no mention of pulverulence. As a candidate for synonymy with *epilobii* Kaltenbach, *triphaga* would therefore seem more eligible than *praeterita*, the description of which is almost identical with that of *epilobiina*.

Walker's specimens labelled *epilobiaria* show certain similarities with *epilobii*, notably the pale siphunculi and hairy ultimate rostral joint. The latter, however, is considerably longer than that of *epilobii*, as is the cauda, and the caudal hairs are more numerous. All Walker's extant specimens of *epilobiaria* were recorded from *Chamaenerion angustifolium*, which, together with the characters just mentioned, suggests a specific difference. There is at least some morphological affinity between this species and *grossulariae* Kaltenbach, a species which Hille Ris Lambers has suggested may migrate to *Epilobium*, although this has not been proved (H.R.L. in Thomas, I., 1948, p. 156). Börner (*loc. cit.*, p. 75) was clearly wrong in putting *epilobiaria* among the 'black aphids' as a possible synonym of *euonymi* Fabricius.

The original material of *epilobiina* and *ovina* was also recorded from *C. angustifolium*, but differs from the foregoing species in having dark siphunculi, only a single pair of secondary hairs on the ultimate rostral joint, and about half the number of caudal hairs. Börner (*loc. cit.*, p. 87) used this name for a species migrating between *Frangula alnus* and *C. angustifolium*, but specimens of Börner's species have not been seen, and its identity with Walker's species is doubtful, to say the least. In fact the presence among Walker's specimens of numerous sexuales suggests—but of course does not prove—holocycly on *C. angustifolium*. If the extremely close similarity between the descriptions of *epilobiina* (p. 66) and *praeterita* (p. 109) is taken to indicate that both refer to the same species, then *epilobiina* must sink as a synonym of *praeterita*, which has page priority.

The remainder of Walker's *Epilobium* species have no original material to support them and can be diagnosed, if at all, only by his descriptions. Theobald collected from *Epilobium* (species not named) aphids which he identified from Walker's descriptions as *diphaga*, *praeterita*, and *tincta*. These he described (1927, pp. 120, 152, 209), but although he gave the dates and localities of his collections, only two of his slides have been found bearing corresponding data. They are

* In the Draft of the English Text of the International Code of Zoological Nomenclature as amended by the Paris (1948) and Copenhagen (1953) Congresses (*Bull. zool. Nom.*, 14, 48-49) it is stated under the Rules of Availability (Article 6): 'The author of the name must have consistently applied the principles of binominal nomenclature in the publication involved, not merely in a particular passage or section thereof.'

both labelled *Aphis praeterita* and contain a single alata and some larvae, which, though poorly mounted, appear closely similar to, if not identical with, Walker's specimens named *epilobiina*, and are therefore probably correctly identified. There are other slides labelled *praeterita* of different dates, some containing sexuales, which seem to be the same species. Some specimens labelled *tincta*, of dates later than those recorded with Theobald's description, appear to be identical with *epilobii*. There are no specimens labelled *diphaga* in Theobald's collection.

Theobald (*loc. cit.*, p. 216) also mentioned *A. despecta* and *A. pollinosa*, which he listed under the heading 'Walker's species not found', and quoted Walker's descriptions of both. He also quoted Walker's description of *A. triphaga* (p. 308) which he believed to belong in *Anuraphis*, although he gave no reasons for this opinion.

Börner (*loc. cit.*, p. 87) applied the name *diphaga* to a small yellow species found under the leaves of *Epilobium hirsutum* and *E. roseum*. The descriptions of *diphaga* by Walker and Theobald are both consistent with this interpretation and there seems to be no reason to dispute it. Börner (p. 160) put *tincta* as a synonym of *Macrosiphum epilobii* (Kittel), which also cannot be disproved and may well be correct; although, as Kittel's names are unavailable, *epilobii* cannot be applied here. Whether *tincta* Walker should replace it must await proof that the *Macrosiphum* associated with *Epilobium* is in fact a distinct species. Börner's interpretations of *pollinosa* and *despecta* are, however, more speculative. He applied the former name to *Aphis corniella* H.R.L., a brownish red species migrating from *Cornus* to *Chamaenerion angustifolium*. Walker described *pollinosa* as deep green, with siphunculi one-sixth of the body length (those of *corniella* are barely one-twelfth). Börner used *despecta* for a species found on *Epilobium parviflorum*, *E. palustre*, and (occasionally) *E. montanum*, recorded from Germany and possibly Portugal. It seems highly improbable that this could be Walker's species, and for the time being at least it is proposed to regard *pollinosa* and *despecta* as *nomina dubia*.

Aphis epilobiaria (Walker MS) Theobald

- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 184: *Aphis epilobiaria*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 75: ? *Aphis (Doralis) evonymi*.

There are seven original Walker slides labelled by him *epilobiaria* (B.M. 318-321; H.D. 49, 366; N.M.I. 40), but he never described a species by this name. It is possible that he decided to regard it as *epilobii* Kaltenbach, for which species the Catalogue indicates nineteen balsam mounts, and there are in the Collection only twelve. Theobald, however, who examined Walker's slides, concluded that *epilobiaria* was distinct and published a description (1927) of Walker's specimens, but did not fix a type. More detailed descriptions of apterous and alate individuals selected from Walker's specimens are given below.

LECTOTYPE. Apterous viviparous female. 'Epilobiaria. Epilob. angustif. Southgate. Aug. 9—[18]47.'

B.M. 321.

Colour: head and first antennal joints light brown, rest of antennae pale yellowish, body colourless; coxae and trochanters light brown, legs pale, apices of tibiae and tarsi dusky; siphunculi pale, very slightly darker at base; cauda, anal, and subgenital plates brown. *Morphology*: body length: 2.44 mm. Head smooth, frons almost flat, cephalic hairs ± 0.07 mm. Length of whole antenna: 1.35 mm.; III: 0.31, IV: 0.21, V: 0.18, VI: 0.13 + 0.32 mm. Third joint lightly and irregularly imbricate with 10-12 hairs (± 0.04 mm.), fourth more heavily imbricated, with 7-9 hairs, fifth with 5-6 hairs, base of VI with 2 long and 1 short hairs, apex of proc. term. with 4 short hairs. Ultimate rostral joint 0.18 mm., with 11 hairs. Prothoracic marginal tubercles small, finger-shaped, rather more than twice as long as broad.

Legs rather slender, apices of tibiae slightly expanded and curved inwards, tibial hairs numerous, acute, up to 0.05 mm., first tarsal joints with 3 hairs, second joint of hind tarsus: 0.12 mm. Siphunculus: 0.47 mm., very lightly imbricated, basal constriction very slight, apical half cylindrical, flange small. Cauda: 0.28 mm., ensiform, with 19 hairs.

PARATYPE. Alate viviparous female. On same slide as lectotype.

Colour: head and thorax deep brown; antennae light brown, becoming paler towards the apices; coxae deep brown, remainder of legs light brown, slightly darker at apices of femora and tibiae; wings hyaline, veins pale yellowish; abdomen colourless except marginal sclerites which are light brown, and a very pale transverse band on VIII; siphunculi pale, slightly dusky on basal third; cauda light brown, darker towards base. Morphology: Body length: 2.46 mm. Ocelli large and prominent, median ocellus projecting slightly beyond the anterior margins of the short lateral prominences. Cephalic hairs: 0.05–0.06 mm. Length of whole antenna: 1.38 mm. III: 0.33, IV: 0.25, V: 0.19, VI: 0.14+0.31 mm. Third joint spinulose-imbricate at the base which is markedly constricted, the remainder irregularly imbricate, except on the dorsal surface which is nearly smooth, with 10 and 11 secondary rhinaria arranged irregularly, mostly on ventral surface, and 7 acute hairs ± 0.035 mm.; fourth with 4 and 4 rhinaria, imbricate, with 5–6 hairs; fifth with primary rhinarium only, imbricate, with 5 hairs; sixth imbricate except at extreme apex which bears 4 short hairs, base of joint with 3 long and 1 short hairs. Ultimate joint of rostrum narrow, tapering: 0.17 mm., with 7 secondary hairs. Second joint of hind-tarsus: 0.12 mm. Abdomen with indistinct marginal sclerites appearing as dusky patches on segments II, III, and VI, the last surrounding the posterior half of the base of each siphunculus. Dorsal abdominal hairs ± 0.06 mm. Siphunculus lightly imbricated, distinctly swollen immediately above the slightly constricted base, narrowest in the middle and widening very slightly towards the apex where it is again constricted below the scarcely perceptible flange; length: 0.33 mm. Eighth tergite with a narrow sclerotic transverse band extending downwards to the ventral surface at each end, and from the centre of which arise 2 hairs (± 0.07 mm.); seventh tergite with 4 hairs. Cauda: 0.26 mm., ensiform, with 14 hairs. Other characters as in apterous viviparous female.

Aphis epilobiina Walker = ***Aphis praeterita*** Walker

1849 *Zoologist*, 7, app. liii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1027.

First described with a number of other aphids from *Epilobium* as follows:

'*The wingless viviparous female.* The body is elliptical, small, green, slightly convex: the limbs are pale yellow: the antennae have brown tips, and are much shorter than the body: the eyes are black: the tip of the rostrum and the tips of the tubes are brown, and the latter are one-eighth of the length of the body: the legs are moderately long; the tarsi and the tips of the tibiae are brown.

The winged viviparous female. While a pupa its colour resembles that of the wingless form: its rudimentary wings are pale yellow: when the wings are unfolded the insect is small and deep black: the borders and the underside of the prothorax are dark green: the abdomen is dark green, with a row of black spots on each side: the antennae and the eyes are black, and the former are much shorter than the body: the rostrum is pale yellow, with a black tip: the tubes are black, and as long as one-eighth of the body: the legs are yellow; the thighs excepting the base, the tarsi, and the tips of the tibiae are black: the wings are colourless and longer than the body: the squamulae are pale green; the stigmata are dull green; the veins are brown.'

This description repeats so exactly the characters given for both the apterous and alate forms of *praeterita* (p. 109) that one can hardly escape the inference that both refer to the same species. As *praeterita* has page priority, *epilobiina* must sink as a synonym.

The Catalogue gives details of wing venation and adds a brief description of an alate 'variety': 'Var. ? Black: abdomen green, with a row of black dots on each side: feelers fully as long as the body: mouth pale yellow, with a black tip: nectaries pale green, about one-sixth of the length of the body: legs pale yellow, moderately long; feet, knees, and thighs from the middle to the tips black: wings colourless, much longer than the body; wing-ribs and rib-veins pale yellow; wing-brands pale brown; the other veins brown.'

The pale siphunculi and relatively long antennae described here do not agree with extant specimens of *epilobiina*, nor with alate *epilobiaria* in which, although the siphunculi may be pale, the antennae are considerably shorter than the body. This description may well refer to a vagrant.

The Catalogue indicates twenty-six balsam mounts of *epilobiina*. Only nine so named exist in the Collections (B.M. 329-334; H.D. 368; N.M.I. 20, 21), but the addition of seven slides of *ovina*, which appears to be the same as *epilobiina*, would bring the total to sixteen.

Theobald (1927, p. 210) redescribed *epilobiina* from a Walker slide in the British Museum, but fixed no type. An apterous viviparous female with the same collection date as that described by Theobald has been selected as lectotype (B.M. 329). This now becomes the type of *praeterita* and is described on p. 110.

Aphis ericae (Hardy MS) Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1038.

Walker quoted Hardy's manuscript description of the apterous viviparous female:

'Viridis, minuta, nitens, convexa, subgranulosa; vertex bifoveolata; antennae corpore longiores; abdomen substylatum, corniculis ellipticis.'

"Grass-green, small, shining, flask-shaped, convex above, very slightly granulose: two minute foveae on the crown, and a very minute notch in front: legs testaceous: mouth with a black tip: feelers springing from slight tubercles, setaceous, dusky, longer than the body; first and second joints greenish; third long; fifth shorter than the fourth; sixth very short; seventh long and slender: sides margined, somewhat dusky: a style at the tip of the abdomen: nectaries elliptical: legs of moderate length, slightly pubescent, dusky greenish; shanks, excepting a band near each tip and tips of the thighs, darker; claws black. Length of the body about $\frac{3}{4}$ line."

Hardy, MSS.
Scotland.'

No specimens are indicated in the Catalogue, and none named *ericae* exist in the Collections.

Hille Ris Lambers (1934, p. 28) stated that *ericae* Walker is the same as *ericae* (Börner, 1933), but as Börner pointed out (1952, p. 118), *ericae* Walker cannot be *Ericaphis ericae* (Börner) as the antennae of the former are longer than the body. Other characters, too, are at variance with those of *Ericaphis*, which has no antennal tubercles, a very short processus terminalis (the 'seventh joint' of Hardy), and tapering, straight-sided siphunculi. Börner's suggestion that *ericae* Walker might be a species of *Wahlgreniella* comes much nearer the mark, but with no original material to support the description it is preferred to regard the name as a *nomen dubium*.

Aphis eriophori Walker = ***Ceruraphis eriophori*** (Walker)

1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 46: *Aphis eriophori*.

1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 6, 41: *Aphis viburni* partim.

- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 953: *Aphis eriophori*.
 1874 Kaltenbach, J. H., *Die Pflanzenfeinde aus der Klasse der Insekten*, p. 725: *Aphis luzulae*.
 1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 117: *Hyalopterus eriophori*.
 1885 Lichtenstein, J., *Les Pucerons. Monographie des Aphidiens.*, pp. 55, 91: *Hyalopterus eriophori*.
 1916 Börner, C., and Blunck, H., *Mitt. (Kais.) biol. ZentAnst. Berl.*, 16, 29, 34: *Aphis viburnicola*.
 1921 Laing, F., *Ent. mon. Mag.*, 57, 127: *Rhopalosiphum eriophori*.
 1922 Jackson, D. J., *Scot. Nat.*, 2, 86: *Rhopalosiphum eriophori*.
 1925 Davidson, J., *A List of British Aphides*, p. 29: *Rhopalosiphum eriophori*.
 1925 Theobald, F. V., *Ent. mon. Mag.*, 61, 77: *Aphis lantanaella*.
 1926 Börner, C., in Abderhalden, *Handb. biol. ArbMeth.*, Abt. 9, 1(2), 226: *Ceruraphis viburnicola*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 65: *Rhopalosiphum eriophori*.
 1930 Börner, C., *Arch. klass. phylog. Ent.*, 1, 133: *Dentatus (Ceruraphis) eriophori*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 585: *Yezabura (Ceruraphis) eriophori*.
 1934 Hille Ris Lambers, D., *Stylops*, 3(2), 26: *Ceruraphis eriophori*.
 1945 Kloet, G. S., and Hinks, W. D., *A Check List of British Insects*, p. 69: *Ceruraphis eriophori*.
 1947 Hille Ris Lambers, D., *Zool. Meded.*, 28, 315: *Ceruraphis eriophori*.
 1950 Hille Ris Lambers, D., *Mitt. schweiz. ent. Ges.*, 23(1), 41: *Ceruraphis eriophori*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 96: *Ceruraphis eriophori*.
 1952 Stroyan, H. L. G., *Entomologist*, 85, 251: *Ceruraphis eriophori*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 137, 139: *Ceruraphis eriophori*.

Described from specimens collected by A. H. Haliday from *Eriophorum vaginatum*, Wicklow, Ireland, as follows:

'*The viviparous wingless female*. The body is elliptical, rather narrow, slightly convex, dark lead-colour, somewhat hairy, and has a spot of white floccus at the tip of the abdomen: the feelers are setaceous, and less than half the length of the body; the fourth joint is full half the length of the third; the fifth is rather shorter than the fourth; the sixth is more than half the length of the fifth; the seventh is much more slender than the preceding joints, and rather longer than the fifth and the sixth: the eyes are tuberculate behind: the mouth reaches the middle hips: the front is nearly straight, slightly notched, and beset with short bristles: the sides of the fore-chest are slightly undulated: the nectaries are nearly one-seventh of the length of the body: the abdominal segments behind the nectaries are very short: the legs are slender, slightly hairy, and rather short; the shanks are straight.

Length of the body $1\frac{1}{4}$ line.

The young ones are paler, and their mouths reach beyond the hind-hips.

"Abundant on *Eriophorum vaginatum*, hare's-tail cotton-grass, in a pool near the pass in Wicklow called 'Sally Gap', 1600-1700 feet high", Aug. 16th, 1847, Mr. Haliday.'

Six original balsam mounts exist, although the Catalogue indicates only four. They are B.M. 335-338; H.D. 51, 102. All bear the same data: 'E. vaginatum. Wicklow. August 16, 1847'. The following specimens and slides named '*viburni*' are also *eriophori* Walker: B.M. 1049-1052, 1055, 1058, 1059, 1061; H.D. 21, 385. These include a number of specimens, mostly sexuales, mounted from the Dry Collection.

LECTOTYPE. Apterous viviparous female. 'Eriophori. E. vaginatum. Wicklow. Aug. 16—[18]47.' B.M. 335. Plate II, C.

Colour: head and body dark brown; antennae dark brown except processus terminalis and base of III which are paler; rostrum pale brown with two apical joints darker; legs brown, apices of femora and tibiae, and tarsi darker; siphunculi black; cauda and anal plate very dark

brown. *Morphology*: body elongate-oval, 2.56 mm. long. Head broad, frons flat without lateral prominences, vertex with an irregular band of minute spinules along the median line and a few scattered spinules near the base of each antenna, cuticle otherwise smooth; cephalic hairs stout, spiny, 0.04–0.06 mm., eyes small, triommatidia prominent. Length of whole antenna: 1.01 mm., III: 0.24, IV: 0.12, V: 0.12, VI: 0.08+0.29 mm. Third joints with 2 and 4 circular secondary rhinaria; all joints irregularly imbricate with a few stout hairs varying in length from 0.015–0.040 mm. Rostrum reaching middle coxae, ultimate joint short, rather broad, with rounded apex and 2 secondary hairs, length 0.13 mm. Legs rather short and stout with sparse spiny hairs, those on the hind tibiae up to 0.06 mm.; first tarsal joints with 3, 3, 2 hairs, second joint of hind-tarsus 0.11 mm. Dorsal integument strongly sclerotic except along the sutures of the thoracic tergites, at the marginal extremities of the sutures of the anterior abdominal tergites, and for a short distance along the median line from mesonotum to abdominal tergite II; the whole surface from mesonotum to abdominal tergite VI with an ornamentation consisting of rows of minute spinules forming an irregularly reticulate pattern, a few scattered spinules along median line and posterior margin of pronotum, very few on abdominal tergite VII, and none on VIII; abdominal hairs numerous, stout, acute, ± 0.05 mm., eighth tergite with 4 hairs, 0.06 mm. Siphunculi heavily sclerotic, coarsely imbricate except near the base, thick, tapering sharply to narrow apex which is less than half the basal width, with pronounced flange; length 0.30 mm. Cauda 0.15 mm. long, bluntly triangular with basal constriction and 5 hairs. Stigmata reniform with thickened chitinous margins.

Aphis euphorbiae Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xliii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1003.

'*The wingless viviparous female*. The body is saffron colour, somewhat small, rather flat, nearly linear, or slightly broader towards the abdomen; the borders and the sutures of the segments are pale yellow: the antennae are pale yellow and very nearly as long as the body; the tips of the joints are black: the eyes are bright red: the rostrum is pale yellow, with a black tip: the tubes are pale yellow, with black tips, and as long as one-sixth of the body: the legs are long and pale yellow; the thighs are pale green; the knees and the tips of the tibiae are dark yellow; the tarsi are black.

In the beginning of October.'

No specimens are indicated in the Catalogue and none named *euphorbiae*, or identifiable with the description, have been found in the Collections.

Theobald (1927, p. 217) quoted Walker's description in full, and added that he found no specimens in the collections of the British Museum, Hope Department, or National Museum of Ireland.

The name *euphorbiae* is preoccupied by *Aphis euphorbiae* Kaltenbach, 1843, as Walker himself realised in the Catalogue, where he put his *euphorbiae* as a doubtful synonym of *euphorbiae* Kaltenbach. Walker's description, however, does not suggest a species of *Aphis*.

Aphis euphrasiae Walker = **Myzus cerasi** (Fabricius) s.l.

1849 *Zoologist*, 7, app. li.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1026.

Originally recorded from *Euphrasia officinalis* and described as follows:

'*The wingless viviparous female*. The body is very small, oval, rather broad towards the hind part of the abdomen: the tubes are as long as one-fourth of the body.'

The Catalogue indicates one dry specimen. A single apterous viviparous female, named *euphrasiae*, and mounted from the Dry Collection by Laing, appears to be Walker's type (B.M. 344). It is *Myzus cerasi* (Fabricius) *sensu latiore* as Theobald recorded (1926, p. 298).

Börner (1952, p. 138) applied *euphrasiae* Walker to a species of *Hyperomyzus* found on *Euphrasia officinalis*. This species has been named *Hyperomyzus boeneri* and described by Prevost (1959).

Aphis extranea Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Originally recorded from *Pelargonium* sp. and described as follows:

'The wingless viviparous female. The body is green and oval: the antennae are very pale yellow and not half the length of the body; their tips are brown: the rostrum and the tubes are pale yellow with brown tips, and the latter are less than one-twelfth of the length of the body: the legs are pale yellow, rather short and very slender: the tarsi and the tips of the tibiae are brown.'

No specimens are indicated in the Catalogue and none named *extranea* have been found in the Collections.

Aphis exul Walker = ***Aphis sambuci*** Linnaeus

1849 *Zoologist*, 7, app. xlviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1024.

Recorded with three other species from *Sambucus nigra* and described as follows:

'The wingless viviparous female. When very young the body is pale velvet-like green; their limbs are still paler: during its growth it acquires a yellow, and afterwards a red tint, varied with pale dull yellow.

The winged viviparous female. The body is deep velvet-like black and rather small: the borders and the under-side of the prothorax and the abdomen are dark green: the antennae are black and shorter than the body: the rostrum is dull green, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are dull yellow; the four hinder thighs excepting the base, the knees, the tarsi and the tips of the shanks are black: the wings have a slight gray tinge; the squamulae are dull green; the stigmata and the veins are brown.

Abundant in the middle of September, near Lancaster: one winged female stationed by a cluster of the young ones above mentioned.'

Walker described four aphids from *Sambucus nigra*: *Aphis picta*, of which he described only the apterous viviparous female, *A. impacta* (alate viviparous female), *A. exul* (young apterae and adult alata), and *A. advena* (alata). The first three are stated to have been found in the middle of September near Lancaster and Newcastle by Hardy. The fourth was taken at the end of November, but the locality is not recorded.

The Catalogue indicates four dry specimens of *picta*, presented by Hardy; three dry specimens of *impacta*, also from Hardy; six dry specimens of *exul* presented by Walker; and no specimens of *advena*. Details of venation are added for *impacta* and *exul*. The Collections contain no specimens bearing the names of any of these four species, but six alate viviparous females of *Aphis sambuci* and one of *Aphis fabae* Scopoli, unnamed but labelled 'Sambucus. Autumn.' in Walker's hand, were present in the Dry Collection and have been mounted by Laing. It seems likely that the six specimens of *sambuci* are the six indicated in the Catalogue for *exul*, and are those on which

Walker based his description of that species. They agree better with the description of *exul*, and with the venation details added in the Catalogue, than they do with that of *impacta*, which is stated to have antennae longer than the body, or of *advena*. It is believed that the single alate *Aphis fabae* probably represents the type of *advena*, as it agrees well with the description. No alata has been found to fit the description of *impacta*, and no apterae have come to light which might be *picta*.

Theobald (1927, p. 264) regarded *exul* as a distinct species and placed it in the genus *Anuraphis*, but the specimens he collected are, like those of Walker, gynoparae of *sambuci*.

Jacob (1949, p. 92) inferred that Walker's description of the alata of *exul* probably refers to the gynopara of *sambuci*, and that of the aptera possibly to the ovipara. He stated also that *picta* was probably described from an old oviparous female of *sambuci*.

Börner (1952, p. 73) correctly placed *exul* and *picta* as synonyms of *sambuci* L., but his inclusion of *advena* here is incorrect, though understandable.

Specimens of *exul* are on slides B.M. 66 (with *advena*), 345-347. The lectotype is on slide B.M. 346.

Aphis familiaris Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1848 *Zoologist*, 6, 2220.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1013.

Originally recorded from *Lycopsis arvensis*, Fleetwood, Lancashire, in autumn, and described as follows:

'*The wingless viviparous female.* The body is small, oval, buff, smooth, shining, and rather flat: the back is very finely granulated and slightly varied with red and green: the antennae are pale yellow, black towards the tips, and less than half the length of the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-twelfth of the length of the body: the legs are pale yellow and rather short; the tarsi and the tips of the tibiae are black.'

The Catalogue indicates one dry specimen. A specimen placed over the name *familiaris* in the Dry Collection and mounted by Laing is *Iziphya bufo* (Walker), but as this bears no resemblance to the description of *familiaris* it is believed that a substitution of specimens or labels must have occurred, and that the type of *familiaris* is an apterous viviparous female of *Brachycaudus helichrysi* (Kaltenbach), which was present among the specimens grouped under the name *lycopsidis*, and agrees well with the description (B.M. 531). (See *Lycopsis* Group, p. 98.)

Theobald (1929, p. 65) suspected that some such mistake had occurred, and correctly interpreted the description as applying to *helichrysi*.

Aphis flaveola Walker: *nomen dubium*

1849 *Zoologist*, 7, app. lv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1027.

Originally recorded from *Carduus* sp. and described as follows:

'*The wingless viviparous female.* The body is elliptical, convex, bright pale yellow: the limbs are pale yellow: the antennae are black towards the tips and a little shorter than the body: the eyes and the tip of the rostrum are pale yellow: the tubes have black tips and are as long as one-fourth of the body: the tarsi and the tips of the tibiae are black.'

In the beginning of November.'

The Catalogue indicates no specimens and none identifiable with *flaveola* have been found.

Theobald (1926, p. 250) assumed from Walker's description that *flaveola* was the same as *Capitophorus carduinus* (Walker) and placed the latter as a synonym. Hille Ris Lambers (1953, p. 150) disagreed with Theobald and claimed that Walker's description probably did not relate to a *Capitophorus* at all. He suggested that it might apply to *Aulacorthum solani* (Kaltenbach) which can occur on thistles in late autumn. With no specimens to support the very brief and inadequate description, it is preferred to regard *flaveola* as a *nomen dubium*.

Aphis fragariae Walker = **Macrosiphum (Sitobion) fragariae** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 426: *Aphis rubi* partim.
- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 431: *Aphis fragariae*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 971: *Aphis fragariae*.
- 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 114: *Siphonophora granaria*.
- 1905 Kirkaldy, G. W., *Entomologist*, 38, 132: *Macrosiphum avenivorum*.
- 1913 Theobald, F. V., *J. econ. Biol.*, 8, 147: *Macrosiphum rubiellum*.
- 1914 Börner, C., *Abh. naturw. Ver. Bremen*, 23, 174: *Macrosiphum cereale* partim.
- 1914 Börner, C., *Mitt. (Kais.) biol. ZentAnst. Berl.*, 15, 22: *Macrosiphum cereale* partim.
- 1918 Mordvilko, A. K., *Faune de la Russie, Ins. Hemipt.*, 1 (2), 340-346: *Anameson rubiellum*.
- 1924 Theobald, F. V., *Ent. mon. Mag.* 40, 128: *Myzus molluginellus*; 129: *Aphis dallmani*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 79: *Macrosiphum rubiellum*; 302: *Myzus molluginellus*; 306: *Myzus laricellus*.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 192: *Aphis dallmani*.
- 1929 Mordvilko, A. K., *Works appl. Ent.*, 14, 55: *Anameson rubiellum*.
- 1931 Börner, C., *Anz. Schädlingssk.*, 7, 29: *Amphorophora avenae*; 29: *Amphorophora rubiellum*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 626: *Amphorophora avenae* partim; 626: *Amphorophora rubiella*.
- 1933 Hille Ris Lambers, D., *Stylops*, 2, 174: *Macrosiphum rubiellum*.
- 1939 Hille Ris Lambers, D., *Temminckia*, 4, 113: *Macrosiphum (Sitobion) fragariae*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphum (Sitobion) fragariae*.
- 1948 Hille Ris Lambers, D., *Trans. R. ent. Soc. Lond.*, 99, 281: *Macrosiphum (Sitobion) fragariae*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 163: *Sitobium avenae*.
- 1952 Stroyan, H. L. G., *Entomologist*, 85, 252: *Sitobion fragariae*.
- 1953 Stroyan, H. L. G., *Entomologist*, 86, 127: *Sitobion fragariae*.
- 1954 Hille Ris Lambers, D., *Boll. Lab. Zool. Gen. e Agr. 'Filippo Silvestri'*, Portici 33, 171: *Macrosiphum (Sitobion) fragariae*.
- 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 267: *Macrosiphum (Sitobion) fragariae*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 247: *Sitobion avenae*.

Originally described as follows:

'*The viviparous wingless female*. The body is pale green, oval, and convex: the head is pale yellow: the feelers are also pale yellow, black towards the tips, and longer than the body: the eyes are dark red: the mouth is pale yellow with a black tip: the nectaries have the same colour and are as long as one-fifth of the body: the thighs are pale green; the shanks are pale yellow; the feet and the tips of the shanks are black. It much resembles the preceding species,* but the tubercles at the base of the feelers are less developed; the feelers are longer

* *Aphis pallida* Walker, i.e. *Aulacorthum solani* (Kaltenbach).

than the body; the fourth joint is shorter than the third; the fifth than the fourth; the sixth is about one-third of the length of the fifth; the seventh is as long as the third. In the beginning of the spring it is hatched from the eggs which are attached to the underside of the leaves of the strawberry (*Fragaria vesca*); sometimes six eggs and upwards are beneath one leaf.

The viviparous winged female. It much resembles the wingless female, but possesses the usual difference in structure, and in the darker colour of the chest, &c.: the wings are like those of the preceding species.—*Variation in the veins of the wing.* The lower branch of the second fork is obsolete except at its source.

The oviparous wingless female. This appears in November; it is rather smaller and more slender than the viviparous female; the abdomen is slightly produced at the tip, and the hind-shanks are dilated.

The winged male. It pairs with the oviparous female in the middle of November; it much resembles the winged female, but the head, the chest, the feelers, the tips of the thighs, and the hind-thighs from the middle to the tips are darker.'

The Catalogue adds the description of a supposed variety of *fragariae*:

'*The viviparous winged female.* Pupa elliptic, yellowish grass-green, with a lively green stripe down the middle of the body: feelers pale yellow, longer than the body; tips of the joints black: mouth pale yellow with a black tip: nectaries very pale yellow, pale green at the base, black at the tips, and nearly one-third of the length of the body: legs long, very pale green or almost white; knees, feet, and tips of the shanks black. When winged it is black: the fore and the hind border of the fore-chest and the fore-breast dull greenish yellow, as is also the abdomen: feelers longer than the body: mouth dull yellow, with a black tip: nectaries black, and full one-fourth of the length of the body: legs yellow; feet and tips of thighs and of shanks black: wings very much longer than the body; wing-ribs yellow; wing-brand and veins brown.

England.'

No specimens are enumerated although several named *fragariae* by Walker exist in the slide collections (B.M. 360, 361, 363; H.D. 251, 252). They include alatae viviparae, oviparae, and larvae collected from strawberry in October and November. One slide labelled *fragariae*, from strawberry in May, contains *Acyrtosiphon malvae rogersii* (Theobald); the remainder are correctly identified. Several specimens of true *fragariae* occur also among material labelled *poae*, *rubi*, and *dirhoda*, and it seems probable that Walker's second and fourth 'varieties' of the alate *rubi** are in fact *fragariae*. The 'variety' described in the Catalogue and quoted above would appear to be normal *fragariae*.

LECTOTYPE. Alate viviparous female. 'Fragariae. Strawberry. Southgate. Nov. 11.—[18]47.'

B.M. 361. Plate II, D.

Colour: head brown, darker round ocelli; antennae dark brown except paler bases of third joints; thorax brown, fore and middle femora with dark apices, hind femora with apical three-quarters dark, tibiae dark at the very base and on apical one-quarter, tarsi dark, remainder of legs pale yellow; abdomen with dark spino-pleural transverse bands on tergites I–V, large dark elongated intersegmental muscle-plates, large marginal spots each with darker central area, and large dark post-siphuncular sclerites; siphunculi blackish brown; cauda pale yellow. *Morphology:* body length: 2.63 mm. Head smooth, lateral prominences low, diverging, ocelli prominent; cephalic hairs fine, acute, ± 0.035 mm. Whole antenna: 2.83 mm., III: 0.70, IV: 0.51, V: 0.44, VI: 0.17 + 0.79 mm.; third joints with 15 and 17 secondary rhinaria in a line extending nearly to the ends of the joint; antennal hairs ± 0.02 mm. with slightly expanded apices. Ultimate rostral joint short, bluntly triangular, 0.12 mm., with

* Walker, 1848, p. 426.

4 secondary hairs. Tibial hairs stout, spiny, sparse near base, becoming more numerous towards apex, up to 0.04 mm.; first tarsal joints with 3, 3, 3 hairs; second joint of hind tarsus 0.14 mm. Marginal sclerites of abdomen large, subcircular, spinulose, with rugose, more heavily sclerotized central areas, 3-5 hairs, and with or without a small tubercle; dorsal chaetotaxy consisting typically of 2 pairs of spinals, 2 pairs of pleurals and 1 pair of marginals per segment; eighth tergite with 4 hairs, seventh with 2, these slightly longer than other dorsal hairs which are ± 0.03 mm. Siphunculus 0.60 mm., very slightly tapering from base to apex, apical one-fifth reticulated with 8-9 rows of cells, remainder lightly imbricated, flange small. Cauda narrow with expanded base and rounded apex, 8 lateral hairs and 2 median subapical, 0.27 mm. long.

Aphis frequens Walker = **Cuernavaca (Holcaphis) frequens** (Walker)

- 1848 Walker, F., *Zoologist*, **6**, 2219: *Aphis frequens*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1012: *Aphis frequens*.
 1901 Mordvilko, A. K., *Horae Soc. ent. ross.*, **33**, 350: ? *Brachycolus korotnewi*.
 1921 Laing, F., *Ent. mon. Mag.*, **57**, 127: *Brachycolus frequens*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **2**, 317: *Brachycolus frequens*.
 1934 Hille Ris Lambers, D., *Stylops*, **3**(2), 31: *Brachycolus frequens*.
 1939 Hille Ris Lambers, D., *Zoöl. Meded.*, **22**, 97-98: *Holcaphis frequens*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 70: *Holcaphis frequens*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 108: *Brachycolus frequens*.
 1952 Stroyan, H. L. G., *Entomologist*, **85**, 252: *Holcaphis frequens*.

Originally recorded, together with *pulvera*, *amica*, *collega*, and *commoda*, from *Artemisia maritima* near Fleetwood, Lancashire, and described as follows:

'*The wingless oviparous female*. The body is small, spindle-shaped, flat, narrow, dark green, somewhat glaucous, mottled with yellow, and slightly powdered with white: the antennae are black, yellow at the base, and about one-fourth of the length of the body: the eyes are dark red: the rostrum is dull green, black at the base and at the tip: the tubes do not appear above the surface of the body: the legs are short and dull yellow; the tarsi and the tips of the tibiae are black. The eggs, when newly laid, are bright yellow, and about one-fourth of the length of the body of the insect.

The wingless male. It is shorter and darker than the female, with which it pairs in October: the antennae are quite black and about half the length of the body.

In the beginning of October, near Fleetwood, with the four preceding species.'

The Catalogue indicates twenty dry specimens. Four, named *frequens* in the Dry Collection, were mounted by Laing. Eleven more, in poor condition and over-macerated, were found in a tube of alcohol with the label '*pulvera*', and have since been remounted. All existing specimens are oviparae or larvae of oviparae.

Laing (1921) redescribed *frequens* and placed it in the genus *Brachycolus* Buckton. He suspected that Walker's record of *Artemisia maritima* as host plant was mistaken.

Theobald (1927) re-published Walker's and Laing's descriptions.

Hille Ris Lambers (1939) described the viviparous forms and its biology and placed it in a new genus *Holcaphis*, which is here regarded as a subgenus of *Cuernavaca* Baker, 1934. Its true hosts are species of *Agropyron*.

LECTOTYPE. Ovipara, 'A. frequens', from Dry Collection.

B.M. 366. Fig. 9.

Colour: head, apical joints of antennae, apex of rostrum, legs, siphunculi, apex of cauda, stigmal, anal, and subgenital plates evenly light brown: antennal joints I-III pale brownish,

pale brown transverse bands on tergites VII and VIII, rest of body pale, unpigmented (in this specimen lightly stained with fuchsin). *Morphology*: body fusiform, 1.95 mm. long; head smooth, frons very slightly convex (the typical frontal profile of this species, with a median convexity between two slight concavities is obscured in this specimen), lateral prominences absent, cephalic hairs fine, acute, 0.015–0.025 mm; whole antenna: 0.70 mm., III: 0.16,

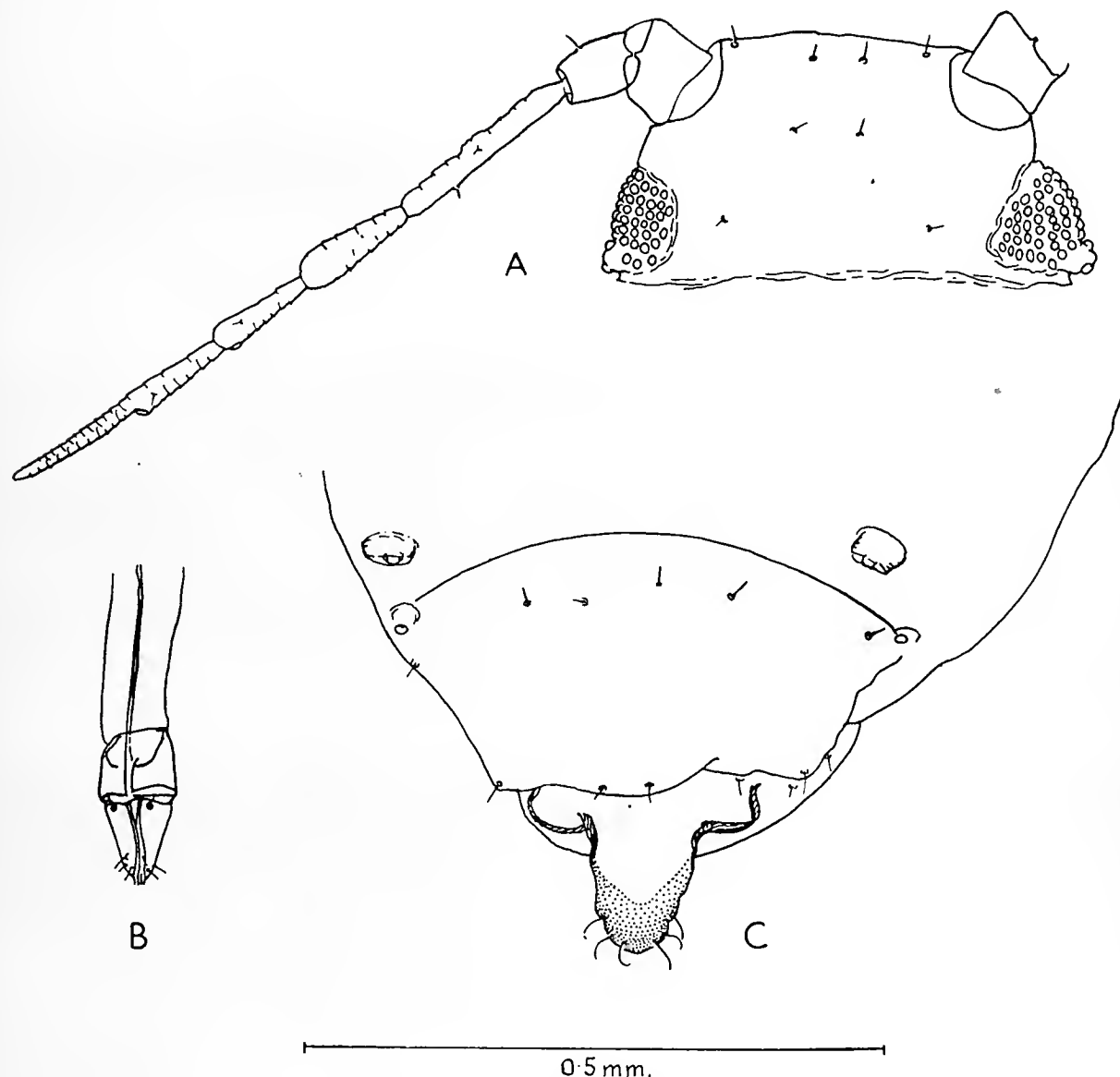


Figure 9. *Cuernavaca (Holcaphis) frequens* (Walker), lectotype, oviparous female, B.M. 366. A. Head and antenna; B. Apex of rostrum; C. Apex of abdomen.

IV: 0.11, V: 0.10, VI: 0.09 + 0.13 mm.; joints coarsely and irregularly imbricate with few short hairs, 0.010–0.012 mm. Rostrum not reaching second coxae; ultimate joint short, triangular, 0.080 mm., with 2 very short secondary hairs on the proximal ventral margin. Legs rather short and stout with short hairs increasing in number towards apices of tibiae; first tarsal joints with 3, 3, 2 hairs, second joint of hind-tarsus 0.13 mm.; hind tibiae slightly thickened on proximal half to two-thirds, with scattered pseudosensoria over most of their length. Abdomen with short acute hairs \pm 0.015 mm., seventh and eighth tergites with broad sclerotic transverse bands bearing irregular rows of minute spinules, eighth tergite with 7

hairs on posterior border; siphunculi very short, 0.08 mm., slightly broader than long, apices rounded, flangeless, with small central orifice, arising from sixth tergite midway between sixth and seventh stomata. Cauda rather broad with rounded apex, scarcely constricted at base, apical half strongly sclerotic, with 6 hairs, length: 0.12 mm.

It appears that *frequens* Walker is not the same as *tritici* Gillette, 1911, as Börner supposed. Gillette (1911, p. 441) described the rostrum of *tritici* as reaching beyond the second coxae and the cauda as pointed, characters which do not agree with those of *frequens*. Palmer (1952, p. 191) described and figured a long, slender ultimate rostral joint in *tritici*, about one and one-third times as long as that of *frequens*, and with two secondary hairs in the centre of the joint.

Aphis fulva Walker MS

There are six Walker slides labelled *fulva* (B.M. 369-371, 1167; N.M.I. 104, 119), a species he never described. A slide in the Hope Department (H.D. 257) has the name *abietis* substituted for *fulva* in Walker's handwriting, which suggests that he may have decided to regard *fulva* as that species. All the slides contain *Cinara* (*Cinaropsis*) *pilicornis* (Hartig) collected from Spruce Fir, Southgate, and *Picea sitchensis* (*Abies menziesii* in Walker's time), Burton on Trent, during July and August, 1847. (See p. 15.)

Aphis glechomae Walker: *nomen dubium*

1848 *Zoologist*, 6, 2247.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1015.

Originally described from *Glechoma hederacea* as follows:

'The wingless viviparous female. The body is pale green, oval, convex, smooth, shining: the head is almost white: the antennae are brown, longer than the body, pale green at the base: the eyes are dark brown: the rostrum is pale green; its tip is brown: the tubes are also pale green, with brown tips, and hardly one-sixth of the length of the body: the legs are slender and very pale green: the tarsi are brown.

Near London, at the end of April.'

The Catalogue indicates no specimens, and none named *glechomae*, or identifiable with it, exist in the Collections.

Hille Ris Lambers (1947, p. 299) described *Ovatus glechomae* sp. n. from the same plant and stated that it did not agree with the description of *glechomae* Walker. Börner (1952, p. 123) regarded *glechomae* Walker as a valid species, which he put in *Phorodon* Passerini, with *glechomae* H.R.L. as a synonym. Walker's description alone is too brief to permit a final decision, but the colour characters do not suggest Hille Ris Lambers's species, which is described as 'dark, dirty brownish green' with a dark head and a tergum which is 'not smooth'.

It is preferred to regard the name as a *nomen dubium*.

Pemphigus globosus Walker = *Smynthuroides betae* Westwood

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1057.

The original description is as follows:

'*Pallide viridis, globosa, pollinosa; thorax in alato obscurus.*

Pale green, short, broad, almost globose, thickly covered with white powder: feelers short: rib-vein diverging much from the fore border beneath the brand, converging more abruptly to it beyond the base of the fourth vein; first and second veins united at the base, diverging

much from thence to the tips; third vein simple, wanting for one-third of the length from the base, nearer to the second at the tip than the second is to the first; fourth slightly curved near the base, straight from thence to the tip, as near to the third vein as to the tip of the rib-vein. From the roots of the Scarlet Runner, in November.

a-r. England (in Canada Balsam). From Mr. Walker's collection.'

No specimens named *globosus* have come to light, but three Walker slides, unnamed, labelled 'Scarlet bean roots. Southgate. Oct. 30, [18]47.' contain adult apterae, nymphs, and larvae of *Smynthuroides betae* Westwood, and are presumably Walker's types. (B.M. 379, (380)*; H.D. 118, 166.) An adult aptera, remounted, has been marked lectotype (B.M. 379).

Aphis gnaphalii Walker = **Macrosiphum (Sitobion) avenae** (Fabricius)

1849 *Zoologist*, 7, app. 1.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally recorded from *Gnaphalium germanicum* (locality and date not given), and described as follows:

'*The wingless viviparous female.* The body is oval, slightly convex, rather long and narrow, shining, pale red: there is a row of black dots on each side of the abdomen, which is greenish towards the tip: the antennae are black, and a little longer than the body: the rostrum is yellow; its tip and the eyes are black: the tube at the tip of the abdomen is very pale red: the tubes are black, and about one-sixth of the length of the body: the legs are long and pale yellow; the thighs from the middle to the tips, the tarsi and the tips of the tibiae are black.'

The Catalogue indicates a single dry specimen. This exists, mounted in balsam by Laing, and is an apterous viviparous female of *Macrosiphum (Sitobion) avenae* (Fabricius) (B.M. 394).

Theobald (1929, p. 322) redescribed this specimen as *Macrosiphum gnaphalii*.

Börner (1952, p. 168) applied the name *gnaphalii* Walker to a species of *Macrosiphoniella*, said by other authors to infest *Gnaphalium* and *Filago*, but did so apparently without having seen either Walker's specimen or the species to which he applied Walker's name.

Aphis gracilis Walker = **Hyalopterus pruni** (Geoffroy)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1040.

Walker described the alate viviparous female, taken as a vagrant on willow, as follows:

'*Nigricans, gracilis, subtus pollinosa; antennae corpore vix breviores; abdomen viride, corniculis brevissimis; pedes pallidi, femoribus tibiisque apice tarsisque nigris; alae albae.*

Blackish, slender, covered beneath with white powder: feelers slender, nearly as long as the body; fourth joint very much shorter than the third; fifth shorter than the fourth; sixth subclavate, much shorter than the fifth; seventh longer than the fifth: abdomen green; nectaries very short: legs pale, long, slender; feet and tips of the thighs and of the shanks black: wings white; brands pale, rather long; veins black towards the tips; distance between the first and second veins at the tips about thrice that between them at the base; third much farther from the second at the tip than it is at the base, a little farther from the second at base than the second is from the first; first fork at the tip nearer to the third vein than to the second fork, much nearer to the third vein than the third is to the second; second fork nearer to the fourth vein than to the first fork; fourth vein curved, especially near the base, nearer to the second

* Contains specimens remounted from slide no. 379.

fork than to the tip of the rib-vein. From the willow, in October. Length of the body $1\frac{1}{2}$ line; of the wings $3\frac{1}{2}$ lines.

Var. First fork wanting towards the tip.

a. England. Presented by F. Walker, Esq.'

The single dry specimen indicated still exists, and is *Hyalopterus pruni* (Geoffroy) (B.M. 395).

Aphis hippophaes Walker = **Capitophorus hippophaes** (Walker)

- 1843 Kaltenbach, J. H., *Monographie der Familien der Pflanzenläuse (Phytophthires)*, p. 35: *Aphis galeopsidis* partim.
- 1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 3, 300: *Aphis galeopsidis* ('1st var.').
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1036: *Aphis hippophaes*.
- 1854 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 28: *Rhopalosiphum hippophaes*.
- 1863 Passerini, G., *Arch. zool. anat. fis.*, 2, 142: *Phorodon galeopsidis*.
- 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 171 (Pl. 32): *Phorodon galeopsidis* partim.
- 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 235: *Rhopalosiphum hippophaes*.
- 1908 Davis, J. J., *Ann. ent. Soc. Amer.*, 1, 251: *Myzus eleagni*.
- 1911 Davis, J. J., *Jour. econ. Ent.*, 4, 325: *Phorodon galeopsidis*.
- 1915 Gillette, C. P., *Jour. econ. Ent.*, 8, 375: *Rhopalosiphum hippophaes*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 122: *Capitophorus hippophaes*.
- 1916 Börner, C., and Blunck, H., *Mitt. (Kais.) biol. ZentAnst. Berl.*, 16, 33: *Capitophorus hippophaes*.
- 1919 Swain, A. F., *Univ. Calif. Publ. Ent.*, 3, 81: *Rhopalosiphum hippophaes*.
- 1923 Takahashi, R., *Rep. Dep. Agric. Formosa*, 4, 28: *Capitophorus hippophaes*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 235: *Capitophorus hippophaes* partim; 238: *Capitophorus gillettei*.
- 1929 Nevsky, V. P., *Aphids of Central Asia*, p. 136: *Capitophorus gillettei*.
- 1931 Hottes, F. C., and Frison, T. H., *Bull. Ill. nat. Hist. Surv.*, 19(3), 284: *Capitophorus gillettei*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 615: *Capitophorus hippophaes*.
- 1936 Tseng, S., and Tao, C., *Ent. and Phytopath.*, Hangchow, 4, 151: *Capitophorus hippophaes*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Capitophorus hippophaes*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 133: *Capitophorus hippophaes*.
- 1953 Hille Ris Lambers, D., *Temminckia*, 9, 151: *Capitophorus hippophaes*.
- 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 276: *Capitophorus hippophaes*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 207: *Capitophorus hippophaes*.

Originally described as follows:

'*Flava, fusiformis; thoracis discus in alatis fuscus; antennae corpore breviores; cornicula mediocria; alae limpidae.*

The viviparous wingless female. Pale yellow, spindle-shaped, sometimes tinged with red: a few green dots on the back, and a row of transverse green spots along each side of the body: front bristly: feelers shorter than the body; first joint angular on the inner side of its tip;

fourth joint much shorter than the third; fifth shorter than the fourth; sixth much shorter than the fifth; seventh a little longer than the sixth; nectaries from one-fifth to one-sixth of the length of the body.

The viviparous winged female. Disk of the chest brownish: wings colourless; distance between the first and second veins about twice farther at the tips than at the base; third very much farther from the second at the tip than at the base, very much nearer to the second at the base than the second is to the first; first fork a little nearer to the second fork than to the third vein, nearer to the third vein than the third is to the second; second fork a little nearer to the first fork than to the fourth vein; fourth vein curved near the base, straight towards the tip, nearer to the tip of the rib-vein than to the second fork. Length of the body $\frac{3}{4}$ line; of the wings 2 lines.

England.'

No specimens are enumerated and none named *hippophaes* have been found, but a Walker slide in the B.M. collection (no. 843) labelled 'rosarum. Hippophae' contains apterae, an alata, and larvae of the species now recognized as *Capitophorus hippophaes* (Walker), and these are regarded as his types. A number of specimens recorded from *Polygonum persicaria* and labelled 'galeopsidis' are also *hippophaes*. (B.M. 374-377; H.D. 53, 116, 281.)

LECTOTYPE. Apterous viviparous female. 'rosarum. Hippophae. Burton, Trent. 24 June—[18]47.' B.M. 843. Plate III, E.

Colour characters obscured by maceration. *Morphology*: body length: 1.74 mm. Frontal hairs 0.05 mm. long, stout, with bulbous apices (collapsed and invaginated by the macerant in this specimen); hairs on vertex shorter (0.020-0.025 mm.) with fan-shaped apical profiles. Whole antenna: 1.22 mm., III: 0.23, IV: 0.18, V: 0.16, VI: 0.08+0.43 mm.; first joint with pronounced angular projection on inner side bearing three short, stout, fan-shaped hairs, second joint normal with a few much smaller fan-shaped hairs, remaining joints with few very short (0.007 mm.) hairs with blunt or scarcely expanded apices. Secondary rhinaria absent. Rostrum reaching beyond second coxae, ultimate joint tapering, apex rostrate, length: 0.12 mm.; with 2 secondary hairs. Legs with some acute hairs, others more or less capitate; first tarsal joints with 3, 3, 3 hairs; length of hind-tarsus II: 0.08 mm. Dorsal hairs on thorax and first 5 abdominal tergites very short (± 0.015 mm.) with broadly expanded apices, pedicel short or absent; spinal hairs on fifth to eighth tergites becoming progressively longer, up to 0.055 mm. on VIII, arising from elongate tubercles; spinal hairs duplicated, pleurals and marginals simple. Siphunculus: 0.40 mm., swollen just below apex, slightly expanded at base, remainder slender, flange small. Cauda: 0.22 mm., parallel-sided, not constricted, apex acute, with 11 hairs.

Aphis hirticornis Walker = ***Periphyllus hirticornis*** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 447: *Aphis hirticornis*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 949: *Aphis hirticornis*.
- 1854 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 13: *Chaitophorus granulatus*.
- 1935 Hille Ris Lambers, D., *Stylops*, 4, 116: *Periphyllus templi*.
- 1947 Hille Ris Lambers, D., *Tijdschr. Ent.*, 88, 237: *Periphyllus granulatus*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3; 51: *Periphyllus lambersi*; 326: *Periphyllus templi*.

Originally described as follows:

'*The viviparous winged female.* The body is dull dark buff: the disc of the head and that of the chest are brown: the feelers are slender, setaceous, hairy, and as long as the body; the fourth

joint much shorter than the third; the fifth is a little shorter than the fourth; the sixth increases in breadth from the base to the tip, and is not half the length of the fifth; the seventh is as long as the sixth, and much more slender than the preceding joints: the front of the head is nearly straight, and has no tubercles: the tip of the mouth is brown, and reaches the middle hips: the sides of the fore-chest are convex: the nectaries are about one-twentieth of the length of the body: the wings are colourless; the veins and the wing-brands are pale brown; the rib-veins widen into the brands which are irregularly spindle-shaped, and form on the hind-border a scarcely perceptible angle from whence springs the fourth vein; the first and the second veins are nearly straight; the third vein is slightly inclined inwards, and forms two very obtuse angles where it throws off its forks; the first fork begins after one-third, and the second fork before two-thirds of the length of the wing; the two forks are sometimes much nearer to each other in one wing than in the other: the legs are yellow, and moderately long; the shanks are very slightly curved, and rather hairy; the tips of the feet are brown.

Length of the body $1\frac{1}{4}$ line; of the wings 3 lines.

July, on the oak, near London.'

The Catalogue adds further details of wing venation, but indicates no specimens. A slide in the Knowles Collection (B.M. 422), named *hirticornis* by Walker, contained a single alata of a *Periphyllus* species, now remounted, which is believed to be the type. It is true that Walker's description differs from the specimen in one important particular; namely in his statement that 'the seventh joint [of the antenna] is as long as the sixth' (i.e. the processus terminalis and the base of the sixth joint are equal in length), whereas in the specimen the processus:base ratio is more than 5:1; but the rest of his description agrees very closely with the specimen. Indeed, strong evidence that this was the specimen described is shown in the statement that 'the two forks [of the third vein] are sometimes much nearer to each other in one wing than in the other', an individual abnormality clearly visible in this specimen. The additional venation details in the Catalogue (not repeated here) amplify those in the main description, and the difference between the positions of the branches of the media in the two wings is again mentioned.

The specimen is complete and excellently preserved, but in Walker's original balsam mount it was not possible to decide whether it was *Periphyllus granulatus* (Koch) or *P. lyropictus* (Kessler), the alatae of which are very similar. The specimen was removed from its mount, therefore, some embryos dissected out, and all were remounted in gum-chloral mountant. It is now possible to see that it has the knobbed cauda and lightly pigmented tibiae characteristic of *granulatus* (vide H.R.L. 1947) and the embryos have long fine hairs and resemble the normal, non-aestivating larvae of that species. Walker's name must therefore take priority over Koch's.

P. hirticornis is not common. It feeds on the flower stems and fruits of *Acer campestre*.

HOLOTYPE. Alate viviparous female. 'hirticornis. Oak. Southgate. July 20—[18]47.'

B.M. 422. Plate III, F.

Colour: head brown with blackish areas surrounding the ocelli. Antennal joints I and II dark brown, III to V light brown with darker apices, whole of VI dark grey-brown. Rostrum pale. Pterothorax dark brown, blackish shaded areas on the lobes. Wings hyaline, stigma grey-brown, an irregular band of dusky pigmentation between C and Sc. Legs pale with scarcely perceptible darkening at apices of tibiae; tarsi grey-brown. Abdomen pale, with darker greyish marginal sclerites and spinal sclerites. Siphunculi evenly grey-brown. Cauda dusky. *Morphology*: body length: 2.39 mm. Head dark sclerotic, ocelli large, hairs rather numerous, fine and very long, the median hairs shorter (0.08–0.15 mm.) than the lateral ones (0.16–0.24 mm.); whole antenna: 2.00 mm., III: 0.53, IV: 0.33, V: 0.27, VI: 0.11 + 0.58 mm.; third joints with 12 and 8 secondary rhinaria in an irregular line along the posterior surface of the basal three-quarters of the joint, a few faint imbrications at base and apex, otherwise smooth; hairs long and fine, the longest 0.23 mm., mostly arising from the anterior

surface; fourth and fifth joints lightly imbricated with hairs as on III, base of VI with 1 long hair (0.18 mm.) arising anteriorly a short distance from the articulation, 1 much shorter (0.025 mm.) on the posterior surface and distal to the first, and a third, shorter still (0.001 mm.) attached to the margin of the primary rhinarium. Rostrum not reaching second coxae, ultimate joint bluntly triangular with 3 secondary hairs. Wings each with 10 fine hairs arising from the posterior border of the pterostigma. Legs with numerous fine hairs of varying length, the longest, on the outer sides, up to 0.24 mm.; first tarsal joints with 6 hairs and a sensilla; second joint of hind tarsus: 0.13 mm. Abdominal tergites with typically 2 pairs of stout, dark, spinal hairs, 4 pairs of fine, pale, pleural hairs, and 2 pairs of stout marginal hairs per segment; many of these are duplicated and interspersed with fine, shorter accessory hairs so that the total numbers per segment are very variable; spinal hairs arising from small, irregular scleroites, those on VIII fused to form 2 large sclerites; marginal hairs arising from large oval sclerites, pleural hairs without scleroites; spinal and marginal hairs the longest, some of those on VII (which bears 9 hairs in all) and at base of siphunculi exceeding 0.30 mm. Siphunculi broadly conical, widely flared at apex, evenly reticulated over whole surface with rather small hexagonal cells which become transversely elongated towards the base of the siphunculus. Cauda scarcely more than half as long as basal width (0.085:0.150 mm.), apical half hemispherical, with small but distinct constriction at its point of junction with the wide, more or less conical, base. Stigmata small, oval, each at posterior margin of a stigmal sclerite. Ventral abdominal hairs numerous, fine, of varying lengths, much shorter than dorsal hairs.

Aphis humilis Walker = ***Hyalopteroides humilis*** (Walker)

- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1038: *Aphis humilis*.
- 1909 Hayhurst, P., *J. N. Y. ent. Soc.*, **17**, 108: *Hyalopterus dactylidis*.
- 1916 Theobald, F. V., *Entomologist*, **49**, 51: *Hyalopteroides pallida*.
- 1921 Mordvilko, A. K., *Bull. Petrograd Div. Sta. Protect. Plants from Pests*, **3**(3), 45: *Hayhurstia dactylidis*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **1**, 224: *Hyalopteroides pallida*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 613: *Hyalopteroides pallida*.
- 1933 Hille Ris Lambers, D., *Stylops*, **2**, 173: *Hyalopteroides dactylidis*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 64: *Hyalopteroides dactylidis*.
- 1946 Shaw, H. K. A., *Ent. mon. Mag.*, **82**, 30: *Hyalopterus dactylidis*, *Hyalopteroides pallida*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 115: *Hyalopteroides humilis*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 173: *Hyalopteroides humilis*.

Originally described, without host plant or other data, as follows:

'Flava, gracilis, fusiformis; frons trituberculata; antennae corporis dimidio vix longiores; cornicula brevissima; pedes sat breves.'

The viviparous wingless female. Pale yellow, long, slender, spindle-shaped, rather flat: three tubercles on the front: feelers very slender, about half the length of the body; fourth joint about half the length of the third; fifth as long as the fourth; sixth a little shorter than the fifth; seventh more than twice the length of the sixth: abdomen with a short style at the tip: nectaries less than one-twelfth of the length of the body: legs rather short. Length of the body 1 line.

a. England. (In Canada Balsam.) Presented by F. Walker, Esq.'

The single specimen indicated in the Catalogue has not come to light. The description, however, as Börner realised, is sufficiently accurate to leave little doubt that Walker was dealing with *Hyalopteroides dactylidis* (Hayhurst) (syn. *pallida* Theobald).

Aphis illata Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Described as follows:

'*The wingless viviparous female.* The body is small, oval, smooth, rather flat, not shining, whitish green: there are three vivid green stripes on the back: the antennae are greenish white, shorter than the body; the tips of the latter joints are darker: the eyes are red: the rostrum is pale green, with a black tip: the tubes are pale green and moderately long; the feet are yellow, with darker tips.

The Catalogue indicates no specimens and none named *illata* have been found.

Aphis impacta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1018.

Walker described two apparently distinct species under the name *Aphis impacta*. The first, taken on *Prunus spinosa* in June, is described as follows:

'*The wingless viviparous female.* The body is oval, short, very plump, dark red, covered with a white bloom: the eyes, the rostrum, and the antennae are black, and the latter are nearly half the length of the body: the tubes are black and as long as one-tenth of the body: the legs are also black.

Found in the beginning of June.

The winged viviparous female. Like the wingless insect in colour, and especially so while a pupa.'

The Catalogue indicates no specimens of this species, and none identifiable with the description and host data have been found.

The description of *impacta* from sloe is almost identical with that of *prunaria* from plum (see p. 110). There is evidence that *prunaria* is *Rhopalosiphum nymphaeae* (L.) which suggests that *impacta* may also be that species, but without further proof it is preferred to regard the name as a *nomen dubium*.

Aphis impacta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xlviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1024.

Recorded, together with three other species, from *Sambucus nigra*, and described as follows:

'*The winged viviparous female.* The body is black: the abdomen is yellowish brown; its disk is mostly black, and it has a row of black spots on each side: the antennae are black and longer than the body; the base of the third joint is yellow: the rostrum is dull yellow, with a black tip: the tubes are also dull yellow and rather more than one-sixth of the length of the body:

the legs are yellow and rather long; the thighs from the middle to the tips, the tarsi and the tips of the tibiae are black: the wings are colourless; the squamulae and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

Found, with the preceding species [*picta*], in the middle of September, near Newcastle, by Mr. Hardy.'

The Catalogue indicates three dry specimens and adds venation details. No specimens identifiable with the description have been found.

Theobald (1926, p. 342) described what he believed to be Walker's species as *Myzus impactus*, but the specimens so named in his collection are a mixture of *Aulacorthum solani* (Kaltenbach), *Myzus persicae* (Sulzer), and *Brachycaudus helichrysi* (Kaltenbach).

Aphis impingens Walker = ***Glyphina betulae*** (Linnaeus)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1042.

Originally recorded from birch and described as follows:

'*Flava, depressa, subovata; antennae corporis quadrante breviores; cornicula nulla; pedes breves, validi.*

The viviparous wingless female. Body yellow, rather flat, increasing in breadth from the head till near the tip of the abdomen: head forming a half-circle, rounded in front: eyes piceous, on the top of the head, not on the sides as is usual: feelers not one-fourth of the length of the body; first and second joints short; fourth much shorter than the third; fifth and sixth of moderate length; seventh very short: mouth not reaching much beyond the fore-hips; fore-chest moderately large; sides convex; nectaries not rising above the surface of the abdomen: legs short, rather stout; fore-legs seated some way in advance of the fore hinder legs: abdomen rounded behind. On the Birch. Length of the body $\frac{3}{4}$ line.

England.'

No specimens are indicated and none named *impingens* have been found.

The description applies very exactly to *Glyphina betulae* (L.), as Börner realised (1952, p. 181). Walker does in fact include this species (as *Thelaxes betulae* (Kaltenbach)) also in the Catalogue (p. 1052) and indicates three balsam mounts. Three mounts still exist, but though labelled '*Th. betulae*' by Walker, they contain *Betulaphis quadrituberculata* (Kaltenbach). No specimens of *Glyphina betulae* have been found in the Collections.

Aphis incerta Walker = ? ***Aulacorthum solani*** (Kaltenbach)

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Originally recorded from *Juniperus communis*, together with *Aphis indecisa*, with no information on locality or date of collection, and described as follows:

'*The winged viviparous female.* The body is pale greenish yellow, and of moderate size; the disk of the head and that of the thorax are buff: the antennae are black and much longer than the body; the base of the third joint is pale yellow: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and nearly one-fourth of the length of the body: the legs are long and pale yellow; the tarsi are darker: the wings are colourless; the squamulae are pale yellow; the costal veins and the stigmata are yellow; the veins are pale brown.'

The Catalogue enumerates no specimens of either *incerta* or *indecisa*, and no material identifiable with either species has been found.

The close similarity of the descriptions of these two species suggests that they may refer to morphs of a single species. Börner (1952, p. 120) applied *indecisa* to a species of *Elatobium* which he stated has been found on *Juniperus communis* in Steiermark, and placed *incerta* as a synonym. A more probable interpretation is that of Hille Ris Lambers (1949, p. 183), who identified both species as *Aulacorthum solani* (Kaltenbach), the characters of which would agree very well with Walker's descriptions.

Aphis inculta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xliii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1021.

Originally recorded from *Apium graveolens* and described as follows:

'The wingless oviparous female. The body is very small, short, elliptical, green, covered with white powder: the head, the eyes, and the antennae are black, and the latter are nearly one half of the length of the body: the tubes are black and not more than one-twentieth of the length of the body: the tip of the abdomen is black and slightly tapering: the legs are black; the thighs, except their tips, are green; the hind tibiae are broad.

In October, near Flectwood.'

The Catalogue indicates no specimens and none named *inculta* or identifiable with it have been found.

Börner (1950, p. 5) applied the name *inculta* Walker to a species of *Dysaphis* migrating from *Crataegus* to *Apium*, but, as Stroyan (1953, p. 98) subsequently observed: 'Walker described only the oviparous female of this species, taken on *Apium*. . . . It would therefore appear doubtful whether the species Börner regards as *inculta* can in fact be Walker's species, since the oviparae of Börner's aphid must be produced on *Crataegus*.' Stroyan had previously expressed this opinion in correspondence with Börner who, in an addendum to his *Europae Centralis Aphides* (1952, p. 485) admitted that his interpretation of *inculta* Walker was open to doubt, and agreed with Stroyan that *apiifolia* Theobald would become the next available name.

Without some definite evidence of what Walker described as *inculta*, the name must be regarded as a *nomen dubium*.

Aphis incumbens Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1018.

Walker described three aphids from *Ononis spinosa*: *Aphis translata*, *A. inducta*, and *A. incumbens*, but without giving the locality or dates of collection. *A. incumbens* is described as follows:

'The wingless viviparous female. The body is small, black, narrow, spindle-shaped, shining, and very finely shagreened: the head and the antennae are yellow, and the latter are about half the length of the body: the tubes are dull yellow with black tips, and hardly more than one-twentieth of the length of the body: the legs are pale yellow and rather short; the knees, the tarsi and the tips of the tibiae are black.'

The Catalogue indicates one dry specimen of *incumbens*, but none of the other species. Under the name *incumbens* in the Dry Collection there were four specimens, since mounted in balsam by

Laing, three of which can be matched with reasonable confidence to Walker's descriptions of these species. They are:

Aphis fabae Scopoli, apt. viv. fem. (B.M. 434): *A. translata*;

Aphis fabae Scopoli, al. viv. fem. (B.M. 434): *A. inducta*;

Brachycaudus helichrysi (Kaltenbach), parasitized larva (B.M. 433): *A. incumbens*.

The fourth specimen is the nymph of an alate male of *Myzus persicae* (Sulzer) (B.M. 433).

Aphis indecisa Walker = ? ***Aulacorthum solani*** (Kaltenbach)

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Recorded from *Juniperus communis*, with *Aphis incerta*, and described as follows:

'The wingless viviparous female. The body is small, green, oval, convex, smooth and shining: the head is yellowish: the antennae are black, yellow at the base, and a little shorter than the body: the rostrum is yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and as long as one-fourth of the body: the legs are also dull yellow and moderately long; the knees, the tarsi and the tips of the tibiae are black.'

No material of *indecisa* exists. The description seems to refer to the apterous form of the aphid described as *incerta* (see p. 83), which is probably *Aulacorthum solani* (Kaltenbach).

Aphis indistincta Walker = ***Aphis fabae*** Scopoli

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1023.

Originally recorded from *Asparagus officinalis* and described as follows:

'The wingless viviparous female. The body is small, nearly oval, black, rather flat: the antennae are dull green, paler at the base, and shorter than the body: the rostrum is also dull green; its tip and the eyes are black: the tubes are black and about one-twelfth of the length of the body: the legs are dull green.'

The Catalogue indicates no specimens and none named *indistincta* have been found. The characters described, and the host plant indication, would be consistent with the opinion that this is *Aphis fabae* Scopoli.

Aphis inducta Walker = ***Aphis fabae*** Scopoli

1849 *Zoologist*, 7, app. xxxv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1018.

Originally recorded from *Ononis spinosa* and described as follows:

'The winged viviparous female. The body is black and very small: the borders of the prothorax are dark yellow: the abdomen is very dark brown: the antennae are black and a little longer than the body: the rostrum is black, yellow towards the base: the tubes are also black and about one-eighth of the length of the body: the legs are yellow; the thighs, the tips of the tibiae, and the tarsi from the middle to the tips, are black: the wings are colourless; the squamulae are yellow; the stigmata and the veins are brown.'

An alate viviparous female of *Aphis fabae* Scopoli, named '*incumbens*' in the Dry Collection, is believed to be the type of *inducta*. (See above.)

Aphis inhaerens Walker = ***Betulaphis quadrituberculata*** (Kaltenbach)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1041.

Originally recorded from birch and described as follows:

'*Pallide flava, subovata, depressa, setosa; antennae gracillimae, corporis dimidio paullo breviores; cornicula brevissima; pedes breves.*

The viviparous wingless female. Pale yellow, flat, bristly, increasing in breadth from the head till near the tip of the abdomen: mouth nearly reaching the middle-hips: feelers very slender, rather less than half the length of the body; fourth joint much shorter than the third; fifth a little shorter than the fourth; sixth as long as the fifth; seventh a little longer than the sixth: front convex in the middle with a slight tubercle on each side: eyes dark piceous, prominent: legs slender, rather short; fore-legs but little shorter than the hind legs; shanks straight: nectaries less than one-twentieth of the length of the body. On the Birch. Length $\frac{3}{4}$ line.

England.'

No specimens are indicated and none named *inhaerens* have been found in the Collections.

The description would seem to apply to *Betulaphis quadrituberculata* (Kaltenbach). It is followed by that of *impingens*, which appears to be *Glyphina betulae* (Linnaeus) (see p. 83). Walker apparently described these species as new, despite the fact that both are included elsewhere in the Catalogue (as *Aphis quadrituberculata* Kaltenbach, p. 951, and *Thelaxes betulae* (Heyden), p. 1052), each with indications of the presence of specimens in Walker's collection. The problem is not simplified by the existence of three Walkerian balsam mounts containing *quadrituberculata* but labelled '*Th. betulae*'.

Aphis inserta Walker = ***Rhopalosiphum insertum*** (Walker)

- 1849 Walker, F., *Zoologist*, 7, app. xxxix: *Aphis inserta*; app. xxxix: ? *Aphis nutricata*; app. xxxix: *Aphis mactata*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1020: *Aphis inserta*; 1021: ? *Aphis nutricata*; 1021: *Aphis mactata*.
- 1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 39: ? *Aphis edentula*.
- 1902 Sanderson, E. D., *Rep. Del. agric. Exp. Sta.*, 13, 137: *Aphis fitchii*.
- 1903 Schouteden, H., *Ann. Soc. ent. Belg.*, 47, 173: ? *Aphis crataegi*.
- 1904 Pergande, T., *Bull. U.S. Bur. Ent.*, 44, 9: *Siphocoryne avenae* partim.
- 1912 Patch, E. M., *Bull. Me agric. Exp. Sta.*, 202, 172: *Siphocoryne avenae* partim.
- 1912 Theobald, F. V., *Hastings Nat.*, 2, 9: *Aphis crataegella* partim.
- 1917 Baker, A. C., *Science* (n.s.), 46, 410: *Aphis prunifoliae*.
- 1919 Baker, A. C., and Turner, W. F., *J. agric. Res.*, 18, 311: *Rhopalosiphum prunifoliae*.
- 1919 Matheson, R., *Mem. Cornell agric. Exp. Sta.*, 24, 750: *Aphis avenae*.
- 1926 Hori, M., *Rep. Hokkaido agric. Exp. Sta.*, 17, Pl. I, fig. 1: *Rhopalosiphum avenae* partim.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 72: *Rhopalosiphum prunifoliae*; 206: *Aphis crataegella* partim.
- 1931 Börner, C., *Anz. Schädlingssk.*, 7, 42: *Rhopalosiphon crataegellus*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 594: *Rhopalosiphon crataegellus*.
- 1934 Hille Ris Lambers, D., *Stylops*, 3(2), 26: *Rhopalosiphum crataegellum*.
- 1944 Hille Ris Lambers, D., *Fruitteelt*, 34th Year, No. 21: *Rhopalosiphum insertum*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 67: *Rhopalosiphum crataegellum*.

- 1945 Leclerc, J., *Bull. Soc. Sci. Liège*, 1 and 2, 59: *Rhopalosiphon incertus*.
 1947 Rogerson, J. P., *Bull. ent. Res.*, 38, 157: *Rhopalosiphum crataegellum*.
 1948 Thomas, I., *Ent. mon. Mag.*, 84, 157: *Rhopalosiphum insertum*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 70: *Rhopalosiphon oxyacanthae*.
 1956 Doncaster, J. P., *Bull. ent. Res.*, 47, 741: *Rhopalosiphum insertum*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 97: *Rhopalosiphon oxyacanthae*.
 1957 Doncaster, J. P., *Entomologist*, 90, 244: *Rhopalosiphum insertum*.

Originally recorded from *Mespilus germanica* and described as follows:

'The wingless viviparous female. When very young the body is oval, convex, pale green: the limbs are darker, except when the skin has been lately shed, and then they are white: the antennae are less than one-half the length of the body: the eyes are red: the tubes are about one-twelfth of the length of the body. When full-grown the body is pale yellow mottled with green, or having three irregular green stripes on the back: the limbs are yellow: the antennae excepting the base, the tips of the rostrum and of the tubes, the knees, the tarsi, and the tips of the tibiae, are brown.

Found in April.'

The Catalogue indicates no specimens, and none named *inserta* have been found.

Walker's descriptions of *inserta* and *mactata* (of which he described the alate viviparous female, also from *Mespilus*, in May, p. 99) are detailed enough to suggest that he had before him the Oat-Apple aphid, *Rhopalosiphum prunifoliae* Theobald (and authors *nec* Fitch). Hille Ris Lambers realised this, and first used *insertum* for the Oat-Apple aphid in 1944, in a paper which was never published.* Confirmation of his opinion is furnished by a Walker slide (B.M. 544), labelled 'Mali. Medlar. Southgate. May 19—[18]47.' containing nymphs and alatae of the Oat-Apple aphid. This is the only extant example of aphids collected from medlar by Walker, and it seems reasonable to assume—and the date on the slide supports it—that the alatae are what Walker described as *mactata*. From the similarity of the descriptions it seems certain that *mactata* is the alate form of *inserta*, so that the latter takes page priority and *mactata* falls as a synonym.

LECTOTYPE. Alate viviparous female. 'Mali. Medlar. Southgate. May 19—[18]47.'

B.M. 544.

Colour: head and thorax blackish brown; antennae evenly grey-brown; apical joints of rostrum darker grey-brown; coxae dark, trochanters and bases of femora pale, almost colourless; remainder of femora dark grey-brown, fore femora rather paler; tibiae pale with dark apices; tarsi dark; abdomen pale with dark marginal sclerites and transverse bands on metanotum and abdominal tergites VII and VIII; siphunculi dark grey-brown; cauda pale grey; anal and subgenital plates dark. *Morphology*: body length: 2.55 mm.: frons nearly flat, slightly elevated on either side at bases of antennae; cephalic hairs fine, acute, ± 0.030 mm.; length of whole antenna: 1.34 mm., III: 0.34, IV: 0.21, V: 0.17, VI: 0.10 + 0.39 mm.; third joint smooth at the base, remainder imbricated, with 17 and 19 secondary rhinaria irregularly arranged over nearly the whole length, with 8–9 acute hairs 0.020 mm. long; fourth joint imbricated, with 8 and 8 secondary rhinaria; fifth with 1 and 1, the primary rhinarium situated a short distance from the apex of the joint: ultimate rostral joint rather narrow, bluntly conical, 0.14 mm. long, with 2 secondary hairs: pronotum with a pair of marginal tubercles: wings with second fork of the media small and close to the apical wing margin (in this specimen the first branch of the media is duplicated in the right wing): legs rather short, tibial hairs short, acute, towards the apices of the joints stout and spiny, ± 0.03 mm. long; tarsi slender; first tarsal joints with 3, 3, 2 hairs; length of hind tarsus II: 0.14 mm.: abdomen with rather

* See footnote, p. 56.

large irregular marginal sclerites, sclerotic transverse bands on VII and VIII, irregular sclerotic patches medially on VI, large post-siphuncular sclerites, a pair of small, rather elongate marginal tubercles on segments I–VII, those on VII lying very near to and in the same plane as the stigmata; dorsal abdominal hairs acute, 0.03–0.04 mm. long; eighth tergite with 2 hairs: siphunculi 0.24 mm. long, lightly imbricated, apical half very slightly swollen, with a slight constriction behind the weakly developed flange: cauda narrow, elongate, scarcely constricted, with rounded apex and 10 hairs, 0.15 mm. long: subgenital plate broadly oval, spinulose, imbricate, with a double row of fine hairs along the posterior margin and 2 long fine hairs anteriorly.

The synonymy of *insertum* is complicated by the fact that this species has frequently been confused with *Rhopalosiphum padi* (Linnaeus) and *R. rufiabdominalis* (Sasaki), both of which, like *insertum*, use Gramineae as secondary hosts.

Aphis crataegi Buckton, 1879 (p. 35), given as a synonym of *insertum* by Rogerson and others, appears to be *pomi* Degeer. Buckton's description and figures agree with *pomi* except for the siphunculi of the aptera which are shown as pale at the base. They are, however, long and straight, and quite unlike those of *insertum*. Nevertheless, in the Buckton Collection there are two slides named *crataegi*, one containing *pomi* and the other *insertum*. But the latter specimens are oviparae only, a form not described for *crataegi*, and it is possible that they may represent *A. edentula* Buckton, also from *Crataegus*, the ovipara of which as described and figured (1879, p. 40 and Pl. 48) could be *insertum*.

Theobald (1927, p. 206) described as new *Aphis crataegella* from *Crataegus*. His apterous viviparous female is *insertum*; the alate female is *Ovatus crataegarius* (Walker).

There appears to be no doubt that *Aphis fitchii* Sanderson is *insertum*, but *annuae* Oestlund, which was regarded by Theobald and other authors as the same species, was described from the upper parts of *Poa annua*, which suggests the habit of *padi* rather than *insertum*. The brief description is applicable to either species.

Hori (1926), describing what he called *Rhopalosiphum avenae* in Japan, was apparently dealing with a mixture of three species. In a coloured plate he figured under this name an alate female of *R. padi*, an apterous *R. rufiabdominalis* (Sasaki), and an apterous *R. insertum*. His host plant list, moreover, included *Crataegus*, *Cydonia*, and *Malus*, primary hosts of *insertum*.

Aphis insessa Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxii.

1852 *List. Homopt. Ins. Brit. Mus.*, 4, 1017.

Recorded, together with *Aphis certa* (see p. 40), from *Viola tricolor*, and described as follows:

'The wingless viviparous female. The body is small, rather flat, oval, yellow: the antennae are black towards the tips and about half the length of the body: the eyes and the tip of the rostrum are black: the tubes have black tips and are hardly one-tenth of the length of the body; the tarsi and the tips of the tibiae are black.'

Found, with the preceding species, in the autumn, near Fleetwood.'

No specimens are indicated in the Catalogue. There were in the Dry Collection three specimens over the name *insessa*, an apterous viviparous female, an alate viviparous female, and a nymph of *Juncobia leegei* Börner. These were mounted by Laing, who described them (1921, p. 123) as *Saltusaphis insessa* (Walker). But Walker's description, though brief, cannot apply to this species, which in any case is not associated with *Viola*. Furthermore, material evidence exists which indicates that *insessa* is almost certainly *Brachycaudus helichrysi* (Kaltenbach): namely two specimens of this species which were present in the Dry Collection together with *certa*, the species

with which *insessa* was first recorded and described. One of these, an apterous viviparous female, is regarded as the type of *insessa* (B.M. 226).

Aphis insita Walker = **Ovatus insitus** (Walker)

- 1849 Walker, F., *Zoologist*, 7, app. xxxix: *Aphis insita*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1021: *Aphis insita*.
- 1913 Theobald, F. V., *J. econ. Biol.*, 8, 142: *Macrosiphum crataegarium*.
- 1926 Börner, C., in Abderhalden, *Handb. biol. ArbMeth.*, Abt. 9, 1(2), 227: *Phorodon mespili*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 280: *Phorodon crataegarium*.
- 1929 Nevsky, V. P., *Aphids of Central Asia*, p. 148: *Phorodon lycopi*.
- 1931 Hille Ris Lambers, D., *Mem. Mus. Stor. nat. Venez. trident.*, 1(2), 5: *Myzus (Ovatus) crataegarium*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 622: *Ovatus mespili*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Ovatus crataegarium*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 122: *Ovatus insitus*.
- 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 371: *Ovatus insitus*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 182: *Ovatus insitus*.

Originally recorded from *Mespilus germanica* and described as follows:

'The winged viviparous female. While a pupa it is linear and pale green: the antennae are green with light brown tips: the legs are very pale green; the tarsi are brown. The winged insect is small, light grass-green, with three black stripes on the thorax: the antennae are black and a little longer than the body: the eyes are dark red: the rostrum is pale green with a black tip: the tubes are also pale green and about one-seventh of the length of the body: the legs are pale green and moderately long; the tarsi, and the tips of the thighs and of the shanks, are black: the wings are colourless and much longer than the body; the squamulae are very pale green; the stigmata are light green; the veins are brown.

Found at the end of May.'

No specimens of *Aphis insita* are indicated in the Catalogue, and none so named have been found in the Collections. Walker's name is now applied to the species of *Ovatus* which uses *Mespilus* and *Crataegus* as primary hosts, and migrates to *Lycopus*. (See *crataegaria*, p. 51.) Specimens of *Ovatus insitus* do in fact occur on original Walker slides named '*crataegina*' (B.M. 280) and '*mali*' (B.M. 548), but as neither sample was recorded from *Mespilus* (both were from *Crataegus*) they cannot be regarded as types.

Aphis insita Walker = **Brachycaudus cardui** (Linnaeus)

- 1852 *List Homopt. Ins. Brit. Mus.*, 4, 1034.

Originally recorded from *Cineraria* and described as follows:

'*Viridi-rufa, ovata aut elliptica, convexa, disco nigra; pedes graciles, femoribus tibiisque apice tarsisque nigris; alis limpidis.*

The viviparous wingless female. Oval, plump, shining, dull greenish red, with a black disk: front hardly convex: the feelers much shorter than the body; fourth joint more than half the

length of the third; fifth much shorter than the fourth; sixth shorter than the fifth; seventh a little longer than the fifth and the sixth: nectaries about one-eighth of the length of the body: legs of moderate length.

The viviparous winged female. Almost elliptical: feelers as long as the body: nectaries almost one-sixth of the length of the body: legs rather long; feet and tips of thighs and of the shanks blackish: wings colourless; rib-veins and brands pale; distance between the first and second veins very much farther at the tips than at the base; third vein a little nearer to the second at the base than at the tip, as near to the second at the base as the second is to the first; first fork generally as near to the third vein as to the second fork, generally as near to the third vein as the third is to the second; second fork a little nearer to the fourth vein than to the first fork; fourth vein more or less curved, generally nearer to the second fork than to the tip of the rib-vein. In May, on *Cineraria*. Length of the body $\frac{2}{3}$ line; of the wings 2 lines.

a-e. England. (In Canada Balsam.) Presented by F. Walker, Esq.'

From the description it is clear that this species is distinct from *Aphis insita* Walker, 1849, although called by the same name. The Catalogue indicates five balsam mounts, two of which still exist (B.M. 435,* H.D. 176). Both contain apterae and alatae of *Brachycaudus cardui* (Linnaeus). An apterous viviparous female has been marked type of *insita* (B.M. 435).

Aphis internata Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxvii.

Originally recorded from *Prunus domestica* and described as follows:

'*The winged viviparous female.* While a pupa it is green: the limbs are paler: the antennae are longer than the body; the tips of the joints are brown: the tips of the mouth and of the tubes are also brown, and the latter are one-fourth of the length of the body: the legs are long and slender; the knees, the tarsi and the tips of the tibiae are brown: the rudimentary wings are pale.

Found at the end of April.'

The Catalogue indicates no specimens, and none identifiable with *internata* have been found.

Aphis introducta Walker: *nomen dubium*

1849 *Zoologist*, 7, app. lvii.

Originally recorded from *Reseda odorata*, without date or locality, and described as follows:

'*The wingless oviparous female.* The body is very small, oval, slightly convex, shining, dark green, with a rim on each side of the body: the head is yellow: the antennae are pale yellow and about half the length of the body; the tips of the joints are black: the rostrum is pale yellow; its tip and the eyes are black: the legs are pale yellow; the knees, the tarsi, the tips of the tibiae and the whole of the hind-tibiae are black; the latter are rather wide.'

The Catalogue indicates no specimens, and none identifiable with *introducta* have been found.

Aphis inulae Walker = **Ovatus inulae** (Walker)

1849 Walker, F., *Zoologist*, 7, app. xlv: *Aphis inulae*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1022: *Aphis inulae*.

* The specimens from this slide have since been remounted on slides B.M. 435, 436, 437.

- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 281: *Phorodon inulae*.
 1939 Börner, C., *Arb. phys. angew. Ent. Berlin-Dahlem*, 6, 79: *Ovatoides inulae*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Ovatus inulae*.
 1950 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 101, 99: *Ovatoides inulae*.
 1951 Remaudière, G., *Rev. Path. vég.*, 30, 139: *Ovatus inulae*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 122: *Ovatus inulae*.

Originally recorded from *Inula* (now *Pulicaria*) *dysenterica*, and described as follows:

'The wingless viviparous female. The body is pale yellow, shining, very small, elliptical, slightly convex: the antennae have brown tips and are a little longer than the body: the eyes are dark red: the rostrum and the tubes have brown tips, and the latter are about one-fifth of the length of the body.

In the autumn, near Lancaster.'

The Catalogue adds details of venation in the alate female and a 'variety', but no specimens are enumerated. No specimens named *inulae* or agreeing with Walker's description and other data have been found. However, the description and host plant citation both suggest that Walker had before him the *Ovatus* species associated with *Pulicaria dysenterica*, as Theobald, Börner, and other authors have surmised. Walker's species is not the same as *inulae* Passerini, 1860, which belongs in the genus *Capitophorus*.

Aphis juglandina Walker: *nomen dubium*

- 1848 *Ann. Mag. nat. Hist.* (2), 1, 335.
 1852 *List Homopt. Ins. Brit. Mus.*, 4, 942.

Originally described as follows:

'The viviparous winged female. The body is nearly linear and rather broad: the head is broad; the front is very prominent, and forms a right angle: the feelers are a little longer than the body; the fourth joint is a little more than half the length of the third; the fifth joint is a little shorter than the fourth; the sixth is a little less than half the length of the fifth; the seventh is rather less than twice the length of the sixth: the body is pale buff, and has a dark line along the back of the head and of the fore-chest whose sides are deeply notched: the nectaries hardly rise above the surface of the abdomen: the legs are yellow and of moderate length; the feet and the tips of the shanks are darker; the fore-legs are but little shorter than the hind-legs: the wings are colourless and rather long; the main vein is inclined as usual, first inwards, then outwards, where it forms a very obtuse angle: it is not widened into a distinct brand, though that part of the wing is yellow, and clouded at the base and at the tip; the branch-veins are not straight; their tips are clouded; the first vein is not so perpendicular as in *Aphis Alni* and other species; the third vein is distinct till very near its source; it is forked some way after one-third of its length, and forked again long after two-thirds of its length; the fourth vein is very distinct along its whole length.

Length of the body $\frac{3}{4}$ line; of the wings $2\frac{1}{2}$ lines.

A single specimen found on the walnut near London, August 3rd, 1847.'

The Catalogue adds venation details but enumerates no specimens. No specimens named *juglandina* have been found. The only Walker slide of specimens collected from walnut on August 3rd, 1847, is one in the Hope Department (no. 309) which contains two alate males of *Chromaphis juglandicola* (Kaltenbach) and is so named by Walker. His statement that in *juglandina* the processus terminalis is rather less than twice the length of the base of the sixth joint excludes the possibility of its being *juglandicola* in which the processus is scarcely one-third of the length of the base. The single alata which he described was presumably a vagrant.

Aphis laricis Walker = **Cinara laricis** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), **2**, 102: *Aphis laricis*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 957: *Aphis laricis*.
 1896 Cholodkovsky, N., *Horae Soc. ent. ross.*, **31**, 666: *Lachnus laricis*.
 1899 Cholodkovsky, N., *Zool. Anz.*, **22**, 469: *Lachnus maculosus*.
 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, **12**, 203: *Lachnus laricis*.
 1909 Guercio, G. del, *Redia*, **5**, 288, 306: *Lachniella nigrotuberculata*.
 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 399: *Lachnus laricis*.
 1919 Jackson, D. J., *Scot. Nat.*, **93**, **94**, 164: *Lachniella laricis*.
 1921 Swain, A. F., *Ent. News.*, **32**, 213: *Dilachnus laricis*.
 1925 Davidson, J., *A List of British Aphides*, p. 47: *Dilachnus laricis*.
 1927 Arnhart, L., *Zeitschr. angew. Ent.*, **12**, 471: *Lachnus muravenensis*.
 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **3**, 135: *Neochmosis laricis*.
 1931 Hille Ris Lambers, D., *Mem. Mus. Stor. nat. Venez. trident.*, **1**(1), 3: *Cinara laricis*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 569: *Cinara laricis*.
 1939 Börner, C., *Arb. physiol. angew. Ent. Berl.*, **6**, 76: *Cinara laricis*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 72: *Neochmosis laricis*.
 1949 Börner, C., *Beitr. tax. Zool.*, **1**, 56: *Cinaria laricis*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 42: *Cinaria laricis*.
 1954 Pašek, V., *Vošky Našich Lesných Drevin* (Homoptera-Aphidoidea.), p. 253: *Cinaria laricis*.
 1956 Hille Ris Lambers, D., *Tijdschr. Ent.*, **98**, 246: *Cinara laricis*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 53: *Cinaria laricis*.
 1957 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, **109**, 349: *Cinara laricis*.

Originally described as follows:

'*The viviparous wingless female*. The body is oval, convex, hairy, velvet-like, very narrow towards the head, of a chocolate colour, and thickly covered with white spots of various sizes; the underside is of a rust-colour, and thickly covered with white powder: the feelers are yellow, slender, filiform, black towards the tips, and hardly more than one-third of the length of the body; the fourth joint is less than half the length of the third; the fifth is a little longer than the fourth; the sixth is about half the length of the fifth; the seventh is extremely short: the eyes are black and rather prominent: the mouth is black and reaches a little beyond the hind-hips; it is dirty white and half-transparent towards the base: the nectaries are black: the front is convex: the sides of the fore-chest are slightly notched: the legs are yellow, long, stout, and hairy; the hips, the knees, the feet, the tips of the shanks, and the hind-thighs from the middle to the tips are black; the shanks and the second joints of the feet are slightly curved.

1st var. The body is broader and of a greenish brown colour: the head is reddish.

2nd var. The body is brown: the head is red: the tips only of the hind-thighs are black; the hind-shanks are black from their middle to their tips. When very young the body is pale brown, and the mouth projects beyond the abdomen like a tail.

3rd var. The body is brown, mottled with black and white.

The viviparous winged female. While a pupa it much resembles the wingless female in colour, being dark brown with a pale yellowish stripe along the middle of the abdomen; when the wings are unfolded it is dark brown, slightly powdered with white: the feelers are

black, and rather less or rather more than half the length of the body; the base of the third joint is yellow; the fifth joint is as long as the fourth; the sixth is much more than half the length of the fifth: the mouth is yellow with a black tip: the base of the thighs, and the shanks except their tips are yellow; the shanks are especially hairy: the wings are colourless, and very much longer than the body; the wing-ribs are dull yellow; the wing-brands and the veins are brown; the rib-vein begins to widen into the brand at about half the length of the wing; the brand is rather long, the angle which it forms near its tip is very obtuse, and it thence slopes gradually away; the fourth vein is straight; the third vein is sometimes very indistinct or almost obsolete along its whole length; the second vein is slightly curved; the first is straight, and is near to the second at the base, but remote at the tip.

The oviparous wingless female. This appears towards the end of the autumn, and is larger than the viviparous female: the abdomen is at least thrice the breadth of the head or of the fore-chest: the body is light brown and has a very slight metallic tinge: the head and the fore-chest are somewhat darker than the rest of the body; there are three lines of black dots and two large transverse black velvet-like spots on each side of the abdomen: the feelers are yellow, black towards their tips, and less than one-third of the length of the body; the fifth joint is much longer than the fourth joint; the sixth is much less than half the length of the fifth: the mouth is black, dull yellow towards the base, and reaches the hind-hips, and is much less than half the length of the body: the legs are yellow; the thighs are darker towards their tips; the hips, the knees, and the tips of the shanks are black. The eggs as usual are large, and thickly enveloped in a glutinous matter; they are laid in November.

1st var. The body is dark brown: the tips of the joints of the feelers are black: the legs are darker and much longer than those of the viviparous female; the base only of the shanks is yellow.

Length of the body $1\frac{1}{2}$ –3 lines; of the wings $2\frac{3}{4}$ lines.'

The Catalogue adds wing venation details and indicates six mounts in Canada balsam. There exist in fact fourteen slides labelled *laricis* by Walker (B.M. 494–501; H.D. 62, 262–264; N.M.I. 97, 98), in addition to four dry specimens, now mounted (B.M. 490–493). The latter are alate males of *Cinara laricis* (Walker) but those on Walker's slides are a mixture of *laricis* and several other species, including some which normally do not occur on larch, although that is the only host plant recorded. *C. laricis* is represented only by apterae viviparae. In addition there are apterae and alatae viviparae of *Cinara boernerii* H.R.L. (syn. *laricicola* Börner nec Matsumura), and oviparae of a third larch-feeding species, *C. kochiana* (Börner). Included with the foregoing, and sometimes mounted on the same slides with them, are *Cinara pinea* (Mordvilko), which feeds only on *Pinus*, *C. bogdanowi* (Mordvilko) (syn. *radicicola* Wellenstein) and *C. piceae* (Panzer), both of which feed on *Picea*.

If Walker's specimens are compared with his descriptions it is at once clear that he regarded all of them as belonging to *laricis*. Firstly, his account of the apterous viviparous female accords very well with those of his apterae which belong to the species now accepted as *laricis* Walker. He then mentions three 'varieties', the second of which includes colour characters, especially of the legs, that are typical of *boernerii*. The first and third 'varieties' are treated too briefly for certain diagnosis, but could apply to *bogdanowi* and *pinea* respectively. The description of the alate viviparous female probably refers to *pinea*, a specimen of which, mounted singly by Walker, is now in the National Museum of Ireland (no. 97). The colour characters, and his mention of 'especially hairy' tibiae, certainly apply better to *pinea* than to *boernerii*, the only other species of which we have alatae; moreover, the antennal joint ratios fit *pinea* better than true *laricis*, which has a very short sixth joint, much less than half the length of the fifth. Finally, the description of the ovipara applies unquestionably to *kochiana*, all the extant specimens of which are oviparae which Walker collected in mid-October. His '1st var.' following the description of the ovipara, probably also refers to *kochiana*.

Although males of *laricis* were present in the Dry Collection, this morph is not described. It is possible that these specimens were described later (1849) as *Aphis tenuior* (see p. 132).

An apterous viviparous female of *laricis* Walker has been designated lectotype (B.M. 498).

LECTOTYPE. Apterous viviparous female. 'Laricis. Larch. Southgate. Aug. 2—[18]47.'

B.M. 498.

Colour: head and thorax brown; abdominal sclerites brown, remainder of cuticle colourless; siphunculi brown; cauda brown; first antennal joint brown; remaining joints colourless except sixth which is dusky. Apical 3 joints of rostrum pale brown, remainder colourless; fore and middle femora with apical three-quarters dusky brown, bases paler; hind femora with apical half deep brown, basal half pale; base of tibiae very dark brown, middle area pale, apices light brown, the brown area darker and longer on hind-tibiae than on the others; tarsi light brown. *Morphology*: body length: 3.62 mm.; body broadly oval. Head broad, median suture prominent, cephalic hairs stout, spiny, 0.09–0.10 mm. long, arising from low conical or rounded prominences. Whole antenna: 1.44 mm.; III: 0.54, IV: 0.24, V: 0.27, VI: 0.15 mm.; sixth joint fusiform, processus terminalis not differentiated, primary rhinarium large, circular, with thickened chitinous rim; 2 of the normal 3 apical setae present, subapicals 4; hairs on other joints stout, spiny, of variable length, longest hair on III: 0.17 mm.; fifth joint with one secondary rhinarium just below the primary. Apical 2 rostral joints together 0.25 mm. Mesosternum with prominent median tubercle. Legs rather stout; hind femora and tibiae much longer than anterior pairs; hairs fairly numerous, stout, spiny, thicker on outer than on inner margins of both femora and tibiae, length: 0.07–0.10 mm.; first tarsal joints with posterior margin nearly 3 times basal diameter, about twice the length of the oblique (distal) margin, and with 10–11 fine hairs and a short sensilla near the apex; length of joint: 0.14 mm.; length of second tarsal joint: 0.30 mm. Abdominal hairs stout, spiny, rather variable in length, the longest about 0.12 mm., arising either singly from separate sclerites or in groups of 2 or more from plates formed by fused sclerites. Siphuncular cones small, 0.23–0.25 mm. in basal diameter, with 2–3 whorls of fine hairs. Cauda very broad, apex rounded; basal width: 0.42 mm., length: 0.15 mm., with 9 rather fine, long (0.16 mm.) hairs.

Aphis lata Walker = ***Brachycaudus cardui*** (Linnaeus)

1850 *Zoologist*, 8, app. ciii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1028.

Originally recorded from *Senecio vulgaris* and described as follows:

'The wingless viviparous female. The body is small, convex, black, shining, nearly triangular, narrow in front, very broad behind: the sides are reddish: the under side is dark green: the antennae are yellow with black tips, and shorter than the body: the rostrum is pale green with a black tip: the tubes are about one-fifth or one-sixth of the length of the body: the legs are yellow, and of moderate length; the tarsi, and the tips of the thighs and of the tibiae are black.

In the autumn, near Newcastle, by Mr. Hardy.'

The Catalogue indicates no specimens, although four labelled *Aphis lata*, and with an additional label attached bearing the host record, *Senecio vulgaris*, occurred in the Dry Collection. These have since been mounted by Laing, who (1925, p. 123) identified them as *Brachycaudus cardui* (L.). All are apterous viviparous females.

Börner (1952, p. 105) put *lata* as a synonym of *lateralis* (Walker), a species which, according to Remaudière (1952, p. 252) is characterized by very short femoral hairs. The specimens named *lata* have fairly long femoral hairs, and there seems no reason to depart from Laing's original diagnosis.

An apterous viviparous female has been marked lectotype of *lata* (B.M. 502).

Aphis lateralis Walker = ***Brachycaudus cardui lateralis*** (Walker)

- 1848 Walker, F., *Zoologist*, **6**, 2251: *Aphis lateralis*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1016: *Aphis lateralis*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 105: *Brachycaudus lateralis*.
 1952 Remaudière, G., *Rev. Path. vég.*, **31**, 252: *Brachycaudus lateralis*.
 1953 Stroyan, H. L. G., *Entomologist*, **86**, 126: *Brachycaudus lateralis*.

Originally described as follows:

'*The wingless viviparous female*. The body is rather small, black, shining, smooth, convex, pale greenish yellow along each side: there is a row of impressions on each side of the back of the abdomen, the sutures of whose segments are indistinct: the body beneath is dull green, reddish towards the thorax and the head: the antennae are black, pale yellow towards the base, and little more than half the length of the body: the tubes are black and about one-eighth of the length of the body: the legs are pale yellow and moderately long; the four hinder thighs except at the base, the knees, the tarsi and the tips of the tibiae are black.

Found with *Aphis Rumicis* on the groundsel (*Senecio vulgaris*), near Lancaster, at the end of September.'

The Catalogue indicates no specimens and none named *lateralis* or identifiable with it have been found.

Börner (1952) used *lateralis* Walker for a species of *Brachycaudus* infesting the lower leaves, and stems at ground level, of *Capsella*, *Lappa*, *Senecio*, and *Chrysanthemum*, and with *Prunus spinosa* as primary host. Remaudière (1952) distinguishes *lateralis* from *cardui* (L.) by the length of the femoral hairs: those of *cardui* being one-quarter to one-tenth of the interantennal space, and those of *lateralis* one-fifteenth to one-twentieth. This can scarcely rank as more than a subspecific difference, and *lateralis* is here regarded as a subspecies of *cardui* L.

Aphis limonii Walker = ***Staticobium limonii*** (Contarini)

- 1847 Contarini, R., *Venezia e le sue Lagune*, **2**, 190: *Aphis limonii*.
 1848 Walker, F., *Zoologist*, **6**, 2248: *Aphis sonchi* var. ?
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1015: *Aphis limonii*.
 1923 Theobald, F. V., *Ent. mon. Mag.* (3), **9**, 23: *Macrosiphoniella staticis*.
 1923 Laing, F., *Ent. mon. Mag.* (3), **9**, 238: *Macrosiphoniella limonii*.
 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **1**, 165: *Macrosiphoniella limonii*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 631: *Macrosiphoniella limonii*.
 1934 Hille Ris Lambers, D., *Att. Mus. Stor. nat. Trieste*, **12**, 144 (including quotation of Contarini's original description): *Staticobium limonii*.
 1935 Mimeur, J. M., *Bull. Soc. Sci. nat. Maroc*, **15**, 36: *Macrosiphoniella limonii*.
 1939 Hille Ris Lambers, D., *Temminckia*, **4**, 69: *Staticobium limonii*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Staticobium limonii*.
 1948 Jacob, F. H., *Proc. R. ent. Soc. Lond. (B)*, **17**, 55: *Staticobium limonii*.
 1949 Hottes, F. C., *Proc. biol. Soc. Wash.*, **63**, 159: *Staticobium* ? *limoni*.
 1951 Remaudière, G., *Rev. Path. vég.*, **30**, 131: *Staticobium limonii*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 163: *Sitobium* (*Staticobium*) *limonii*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 247: *Sitobium* (*Staticobium*) *limonii*.

Originally recorded from *Statice limonium* (now *Limonium vulgare* Mill.) and described as follows: '*Aphis sonchi*, var. ?

The wingless viviparous female. The body is oval, convex, dull olive-green, not shining, of moderate size: the antennae are yellow, black at the base and towards the tips, and as long as the body: the rostrum is dull yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and about one-sixth of the length of the body: the legs are dull yellow and rather long; the tarsi, and the tips of the thighs and of the tibiae, are black; the hind-shanks are slightly dilated from the base to the middle.

Near Fleetwood, in the beginning of October.'

Walker, unaware of Contarini's description, used the name *Aphis limonii* in the Catalogue, and indicated a single dry specimen. Two specimens named *A. limonii* in the Dry Collection, since mounted by Laing, are oviparae of *Staticobium limonii*, and presumably Walker's types.

The species has been well described by Hille Ris Lambers (1939), and Jacob (1948) has described sexuales from *Limonium humile* (Mill.) in North Wales. But as both he and Remaudière, who (1951) recorded this species from *Limonium bellidifolium* in France, state that their specimens differ slightly from those described by Hille Ris Lambers, and as Contarini's description indicates a dark red or purple insect, a brief description of Walker's type is given here.

LECTOTYPE. Ovipara. '*Aphis limonii*.' From Dry Collection.

B.M. 512.

Colour (the specimen appears to have been subjected to prolonged treatment in potassium hydroxide, and the colours are very much paler than those of specimens not so treated. Parts here described as brown may originally have been almost black): head and thorax brown; first and second antennal joints dark brown, third pale with darker apex, fourth with pale base and apical third dark, fifth and sixth uniformly brown. Rostrum pale, apical joint scarcely darker. Coxae brown, trochanters pale, femora pale with slightly darker apices, tibiae pale with dark apices, tarsi brown. Abdomen pale with light brown sclerites, stigmal sclerites rather darker. Siphunculi pale brown on basal half, darker brown on apical reticulated area. Cauda pale. Subgenital plate brown. *Morphology:* body length: 2.38 mm. Head smooth, with small lateral frontal prominences; cephalic hairs rather short, ± 0.03 mm., stout, with expanded apices. Third antennal joint 0.47 mm. long with a single secondary rhinarium near the base, hairs ± 0.15 mm. with blunt or very slightly expanded apices, IV: 0.33, V: 0.28, base of VI: 0.13 mm. (processus incomplete, and absent from other antenna). Ultimate rostral joint 0.14 mm. long with 6 secondary hairs. First tarsal joints with 3, 3, 3 hairs; length of hind-tarsus II: 0.15 mm. Hind-tibiae strongly swollen on basal half with 64 and 69 pseudo-sensoria. Dorsal abdominal hairs rather short (up to 0.03 mm.), blunt, arising from small sclerites. Siphunculi 0.33 mm. long, expanded at the base, basal half with numerous rather regularly spaced spinules, the more distal ones becoming larger and merging gradually with the apical reticulations. Reticulated area made up of about 9 rows of cells on apical third of siphunculus. Flange almost absent. Cauda 0.29 mm. long, 0.19 mm. broad at the base, tapering to a blunt apex, with distinct constriction one-third of its length from the base, with 10 hairs.

Aphis littoralis Walker = ***Sipha littoralis*** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 44: *Aphis littoralis*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 953, 1168: *Aphis littoralis*.
- 1921 Laing, F., *Ent. mon. Mag.*, 57, 119: *Sipha littoralis*.
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 7: *Sipha littoralis*.

- 1939 Hille Ris Lambers, D., *Zool. Meded.*, **22**, 82, 87: *Sipha littoralis*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 70: *Sipha littoralis*.
 1952 Börner, C., *Mitt. thüring. Bot. Ges.*, Beiheft 3, 54: *Sipha littoralis*.

Originally described as follows:

'This species is very abundant in the autumn on the grass of the muddy sea-shore near Lancaster, and the following description is from specimens found on that plant.

The viviparous wingless female. The body is rather flat, somewhat long and narrow, dark green, sometimes but very rarely pale green, not hairy nor bristly, but clothed with a white velvet-like down; it increases slightly in breadth from the head to the tip of the abdomen: the feelers are filiform, yellow, black towards the tips, and about one-fifth of the length of the body: the mouth is dull green with a black tip: the legs are dull yellow, and very short; the feet are black: all the segments of the body are distinct, transverse, and of nearly equal size: it moves slowly, and has much resemblance to the preceding species [*Aphis glyceriae* Kaltenbach] whose body however is hairy.

The oviparous wingless female. I have not yet observed any outward difference between this and the preceding form.

The wingless male. It appears with the oviparous female at the end of October, but is comparatively scarce: the body is brown, and slightly increases in breadth from the head till near the tip of the abdomen: the feelers are about half the length of the body, and are shorter than those of the darker brown male of *A. Glyceriae*, whose nectaries moreover rise a little above the surface of the body, whereas in this species they are even with the same. In the latter part of autumn the habitation of this species is frequently submerged, and its body is often covered with clay.'

The supplement to the Catalogue (p. 1168) indicates eleven dry specimens. The Dry Collection contained four apterous viviparous females and two larvae labelled *littoralis* Walker; it also contained sixteen apterae viviparae and larvae of the same species, but unnamed. An adult from the labelled series has been marked as type. No specimens of males or oviparae have come to light.

Laing remounted the specimens from the Dry Collection and (1921) redescribed and figured the species, which at that time was known only from Walker's material. Theobald (1929) repeated Laing's description and noted two British records of *littoralis*, but no specimens bearing the dates and localities given can be found in the Theobald or British Museum Collections. Hille Ris Lambers (1939), in his revision of the genus *Sipha*, gave *Spartina stricta* (now *S. maritima*) as the main host of *littoralis*, and stated that although alatae are rare, the species is common in England and the Netherlands. Nevertheless, records of it from Britain are very scarce, and, apart from Walker's material, it is represented in the British Museum Collections by fewer than a dozen specimens from the Welsh and Scottish coasts.

LECTOTYPE. Apterous viviparous female. 'A. littoralis.' From Dry Collection.

B.M. 513. Plate IV, G.

Colour: head and thorax pale honey colour. Antennae dark brown, third joint slightly paler than the others. Rostrum pale with the 2 apical joints brown. Legs brown; tibiae rather paler than femora and tarsi. Abdomen pale with light brown sclerites and muscle-plates. Siphunculi light brown. Cauda colourless. *Morphology:* body length 1.98 mm. Cuticle of head and thorax densely covered with minute irregularly shaped nodular or spinulose projections, which occur also on the abdominal dorsum, but in isolated clusters around the bases of the hairs; the rest of the integument between the clusters covered with less distinct, scale-like thickenings of the cuticle, irregularly angular in outline; eighth tergite and whole of ventral surface with minute spinules arranged in transverse rows. Frons subconical, without lateral prominences. Cephalic hairs sparse, short, 0.02 mm. long. Antennae short, of 5 joints, 0.48 mm. long; III: 0.13, IV: 0.05, V: 0.09 + 0.07 mm.; third joint near the apex with 2

short hairs about two-thirds the basal diameter of the joint. Eyes small, globose, triommatidia not differentiated. Rostrum reaching second coxae, apical joint bluntly conical, without secondary hairs. Legs short and stout, trochanters fused with femora, tibiae with a few stout spines together with some longer fine hairs; first tarsal joints with 2 fine hairs and median short sensilla, second joint of hind-tarsus 0.14 mm. long. Siphunculi very short, conical, minutely spinulose, about 0.07 mm. in basal diameter. Caudal knob 0.06 mm. long, 0.08 mm. broad, with 5 fine hairs. Dorsal abdominal hairs stout and spiny, varying in length from about 0.02 mm. on the anterior tergites to 0.13 mm. on the eighth tergite, which carries 4 hairs on its posterior margin.

Lycopsis Group

Under the heading 'Aphides on the Small Bugloss (*Lycopsis arvensis*)' Walker (1848, *Zoologist*, 6, 2219-21) described the following species: *Aphis dianthi*, *A. lycopsidis*, *A. consueta*, *A. adjuta*, *A. conjuncta*, *A. basalis*, *A. familiaris*, *A. adjuvans*, *A. adscita*, and *A. suffragans*. All except the first of these are new names. As in the case of his species from *Cynoglossum* (p. 52), all the specimens on which his descriptions appear to have been based were put in the Dry Collection unsorted, in this instance distributed apparently quite arbitrarily over the names *lycopsidis*, *consueta*, and *suffragans*. There are in all twenty-seven specimens comprising seven species. Comparison of these specimens with Walker's description leads to the following analysis:

A. lycopsidis (apterous viviparous female described: 4 specimens indicated in the Catalogue): *Sitobion avenae* (F.), 2 apterous viviparous females (over the name '*lycopsidis*' in the collection).

A. consueta (ovipara described: 2 specimens indicated): *Sitobion avenae* (F.), 2 oviparae ('*lycopsidis*').

A. adjuta ('pupa' described: 1 specimen indicated): *Sitobion avenae* (F.), 3 nymphs ('*lycopsidis*').

A. conjuncta (apterous viviparous female described: 2 specimens indicated): *Amphorophora rubi* (Kaltenbach), ovipara ('*lycopsidis*').

A. basalis (apterous viviparous described: 1 specimen indicated): *Acyrtosiphum pisum* (Harris), larva ('*lycopsidis*').

A. familiaris (apterous viviparous female described: 1 specimen indicated): *Brachycaudus helichrysi* (Kaltenbach), apterous viviparous female ('*lycopsidis*').

A. adjuvans (ovipara described: 4 specimens indicated): *Aspidaphis adjuvans* (Walker), 4 oviparae ('*lycopsidis*' and '*consueta*').

A. adscita (apterous and alate viviparous females described: 3 specimens indicated): *Sitobion avenae* (Fabricius), larva (presumed type of apterous female), and *Brachycaudus helichrysi* (Kaltenbach), alate viviparous female and alate male (representing alate females of *adscita*) (the former over '*consueta*', the two latter over '*suffragans*').

A. suffragans (alate viviparous female described: 2 specimens indicated): ? *Metopolophium festucae* (Theobald), alate viviparous female ('*consueta*').

Eighteen specimens can thus be accounted for, compared with a total of twenty indicated for these species in the Catalogue. Of the rest, an apterous viviparous female and two nymphs of *Acyrtosiphon malvae* (Mosley) could doubtfully be allotted to *A. dianthi* (i.e. *Myzus persicae* (Sulzer)) which is here described as having a pale green body, yellow antennae with black tips, longer than the body, pale yellow rostrum with black tip, pale yellow, black-tipped siphunculi one-fourth as long as the body, and long, pale yellow legs with black tarsi and tibial apices. The colour

characters as given could apply to *malvae*, except that the siphunculi of that species are typically without dark tips, and dark tips, moreover, are not apparent in the mounted specimens.

Finally, from the specimens grouped over the name *consueta*, there remain five larvae of *Sitobion avenae* and an apterous male of *Schizaphis rufula* (Walker). The latter may possibly be the specimen on which Walker based his description of the male of *bufo* (p. 37). The rest are unaccounted for.

Aphis lycopsidis Walker = **Macrosiphum (Sitobion) avenae** (Fabricius)

1848 *Zoologist*, 6, 2219.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Recorded, together with eight other species, from *Lycopsis arvensis*, near Fleetwood, Lancashire, in the autumn, and described as follows:

'*The wingless viviparous female*. The body is oval, convex, shining, of moderate size, dark red, almost black above, or sometimes nearly all black: the body beneath has a light gray bloom, and is almost white about the base of the hind-legs: the antennae are black and a little longer than the body: the eyes, the rostrum and the tubes are also black, and the latter are full one-fourth of the length of the body: the tip of the abdomen is yellow: the legs are black and very long; the tibiae, except their tips, are yellow.'

The Catalogue indicates four dry specimens but adds no further details. The types of *lycopsidis* are believed to be two apterous viviparous females of *Sitobion avenae* which had been placed in the Dry Collection, together with a number of other specimens, presumably all from *Lycopsis*, over the name *lycopsidis* (see *Lycopsis* Group, above). These specimens are strongly sclerotic autumn forms which would appear very dark in life, and to which Walker's description could well apply. One has been marked lectotype (B.M. 532).

Theobald (1926, p. 364) stated that Laing, after mounting Walker's specimens of *lycopsidis*, identified them as *Macrosiphum granarium* (Kirby). Hille Ris Lambers (1939, p. 108) put *lycopsidis* as a synonym of *Macrosiphum (Sitobion) avenae* (F.). Börner (1952, p. 163) put *lycopsidis* as a doubtful synonym of *Sitobium avenae* (F.); but his interpretation of *avenae* differs from that of Hille Ris Lambers and many other authors: he uses the name for the species having *Rosa*, *Rubus*, and *Fragaria* as primary hosts, and for which *fragariae* Walker is generally accepted as type. *Aphis lycopsidis* is not *fragariae*, and under Börner's classification would become a synonym of *Sitobium granarium* (Kirby).

Aphis mactata Walker = **Rhopalosiphum insertum** (Walker)

1848 *Zoologist*, 7, app. xxxix.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Originally recorded from *Mespilus germanica* and described as follows:

'*The winged viviparous female*. The body is small and black: the abdomen is green, with two or three transverse bands at the tip and a row of black spots on each side: the borders of the prothorax are green: the antennae and the rostrum are black; the former are hardly more than half the length of the body; the base of the latter is green: the tubes are black, not more than one-twentieth of the length of the body: the legs are pale yellow and moderately long; the tarsi, and the tips of the thighs and of the tibiae, are black: the wings are colourless and very much longer than the body; the squamulae are very pale yellow; the stigmata are pale dull green; the veins are brown.'

Found at the end of May.'

The Catalogue indicates no specimens, and none named *mactata* occur in the Collections. A

Walker slide labelled 'Mali. Medlar. Southgate. May 19—[18]47' contains alatae and nymphs of *Rhopalosiphum insertum*, the characters of which agree well with Walker's description. An alate viviparous female has therefore been designated lectotype of *mactata* (B.M. 544). The description of *mactata* follows that of *inserta*, of which the aptera only is described, also from medlar. There seems little doubt that *mactata* is only the alate form of *inserta*, and must therefore fall as a synonym of the latter. (See p. 87.)

Aphis melissae Walker = **Ovatus crataegarius** (Walker)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1037.

Originally described as follows:

'*Pallida, minuta, elliptica; antennae corpore multo longiores; cornicula longissima.*

The viviparous wingless female. Elliptical, pale yellow, very small: front narrow, with a conical protuberance on each side; feelers very much longer than the body; fourth joint about half the length of the third; fifth as long as the fourth; sixth much shorter than the fifth; seventh as long as third: nectaries about one-third of the length of the body: legs long. Length of the body $\frac{1}{2}$ line.

England.'

Although the Catalogue indicates no specimens, a Walker slide from the Knowles (B.M.) Collection, labelled 'Melissae. Melissa. Tottenham. Aug. 19—[18]47', contained six apterae viviparae of *Ovatus crataegarius* (Walker) (now remounted on two slides, B.M. 552, 553) which are undoubtedly Walker's types. The lectotype is on B.M. 552.

Aphis menthae Walker = **Ovatus crataegarius** (Walker)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1045.

Recorded from *Mentha hirsuta* (now *Mentha aquatica*) and described as follows:

'*Pallide flava, subfusiformis; antennae graciles, corpore paullo longiores; cornicula corporis octava longitudine; pedes graciles sat longi.*

Pale yellow, almost spindle-shaped: front narrow: feelers slender, a little longer than the body; first joint seated on a tubercle; fourth much shorter than the third; fifth a little shorter than the fourth; sixth shorter than the fifth; seventh long, slender: abdomen with a very short style: nectaries about one-eighth of the length of the body: legs slender, rather long. From *Mentha hirsuta*. Length of the body $\frac{1}{2}$ line.

England.'

No specimens are indicated in the Catalogue, and none identifiable with *menthae* Walker have come to light. From the description, however, it seems likely that Walker was describing the summer form of *Ovatus crataegarius*, and *menthae* is here regarded as a synonym of that name. (See p. 50.)

Aphis nigro-rufa Walker: *nomen dubium*

1848 *Zoologist* 6, 2247.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1014.

Originally recorded from *Anagallis arvensis* described and as follows:

'*The wingless viviparous female.* The body is black, narrow, linear, and rather flat: the prothorax is dull red; the fore border, the hind border and the under-side are pale red: the abdomen is dark red: the antennae are black and very much longer than the body: the rostrum

is yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and as long as one-fourth of the body: the legs are yellow and very long; the thighs from the middle to the tips, the tarsi and the tips of the tibiae are black.'

The Catalogue indicates a single dry specimen. Over the name *nigro-rufa* in the Dry Collection were eight specimens comprising six species. These are listed and their identities discussed under *chrysanthemi* (p. 42). To none of these specimens, however, can the description of *nigro-rufa* be applied, and the name must be classed as a *nomen dubium*.

Aphis nociva Walker = **Brachycaudus helichrysi** (Kaltenbach)

1849 *Zoologist*, 7, app. xxxvi.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1019.

Originally recorded from *Prunus spinosa* near Lancaster at the end of October, and described as follows:

'*The winged male*. The body is small and black: the feelers are shorter than the body and rather thick till near their tips: the rostrum is yellow with a black tip: the abdomen is rather dark green: the tubes are black and as long as one-eighth of the body: the legs are yellow; the hind thighs, except the base, the tips of the other thighs and of the tibiae, and the tarsi, are black: the wings are colourless; the squamulae are yellow; the stigmata and the veins are brown.'

The Catalogue adds venation details and indicates two dry specimens. No specimens named *nociva* have been found, but an alate male of *Brachycaudus helichrysi*, placed over the name *prunina* Walker in the Dry Collection and with the label 'Sloe', agrees fairly well with the description, and very exactly with the venation details in the Catalogue. This specimen cannot qualify as type of *prunina*, because only the spring apterous and alate viviparous forms of that species were described. It is therefore regarded as the type of *nociva* (B.M. 586).

Aphis nutricata Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxix.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1012.

Originally recorded from *Mespilus germanica*, together with *Aphis inserta* and *A. mactata*, and described as follows:

'*The wingless viviparous female*. The body is rather flat and broad, especially towards the hind part, and of a beautiful soft fresh green colour mingled with yellow: the antennae are not more than one-third of the length of the body: the tubes are pale green with brown tips, and about one-eighth of the length of the body: the legs are pale green; the tarsi and the tips of the tibiae are brown.

Found in the beginning of July.'

The Catalogue indicates no specimens and none identifiable with *nutricata* have come to light. The name is possibly a synonym of *inserta*, but without further proof it is preferred to regard it as a *nomen dubium*.

Schizoneura obscura Walker = **Anoecia corni** (Fabricius)

1852 *List Homopt. Ins. Brit. Mus.* 4, 1051.

Originally described, without host plant or other data, as follows:

'*Nigra; alae cinereae, stigmatum nigro lato subovato*.

Black, a little broader than *S. Corni*: wings gray; brand black, broad, almost oval; distance

between the first and second veins at the base hardly one-fourth of that between them at the tips; third vein nearer to the second towards the base than at the tip, nearer to the second than the second is to the first; fork much nearer to the fourth vein than to the third, a little farther from the third than the third is from the second; fourth vein moderately long, straight, curved near the base, much nearer to the tip of the fork than to the rib-vein. Length of the body $\frac{3}{4}$ –1 line; of the wings $2\frac{1}{2}$ – $2\frac{3}{4}$ lines.

a. England. Presented by J. C. Dale, Esq.'

The Catalogue indicates a single dry specimen. This still exists in good condition, and is an alate viviparous female of *Anoecia corni* (F.) (B.M. 594).

Aphis ovina Walker MS

There are eight original balsam mounts labelled by Walker *ovina*, a species he never described. All except one contain alate and apterous viviparous females of what appears to be *Aphis praeterita* (*epilobiina*) Walker (p. 66) from *Chamaenerion angustifolium* at Southgate and Tottenham on various dates in July and August, 1847. (B.M. 597–600; H.D. 71; N.M.I. 133, 134.) The eighth slide contains specimens of *Aphis nasturtii* Kaltenbach from *Polygonum persicaria* (H.D. 379), that are believed to be the types of *transiens* Walker (see p. 135).

Aphis palans Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1043.

Originally described, without host plant or locality data, as follows:

'*Oleaginea, longa, linearis, subcylindrica, albo pollinosa; antennae nigrae, corporis triente non longiores; pedes breves, virides, tibiis apice tarsisque nigris.*

The wingless female. Olive-green, long, linear, almost cylindrical, powdered with white: feelers black, setaceous, about one-third of the length of the body: legs dull green, short; hips, feet, and tips of the shanks black.

England.'

No specimens are indicated in the Catalogue and none identifiable as *palans* have been found.

Aphis pallida Walker = ***Aulacorthum solani*** (Kaltenbach)

1848 *Ann. Mag. nat. Hist.* (2), 2, 430.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 971.

Originally described as follows:

'This species resembles *A. Urticae* in structure, but is very distinct; its colour is paler, especially in the winged form; the first joints of the feelers and the tubercles on which they are seated are less developed: the wing-brands are almost white; the first and second veins are thicker and more distinct than the third vein.

It feeds on *Calceolarias* in greenhouses, on a *Villarsia* in hot-houses, and on some other plants.

The viviparous wingless female. The body is pale straw-colour, shining, oval, and convex: there is a large pale green spot at the base of each nectary: the feelers are much longer than the body; the tips of their joints, the eyes, and the tip of the mouth are black: the nectaries are nearly as long as one-fourth of the body: the legs are long; the knees are brown; the feet and the tips of the shanks are black.'

The Catalogue adds venation details and enumerates seven balsam mounts. Four Walker slides labelled *pallida* by him are in the Collections (B.M. 613-615; H.D. 37), and contain *Aulacorthum solani*, apterous and alate viviparous females, from *Calceolaria* and *Villarsia*, and a mixture of *A. solani* and *Myzus persicae* (Sulzer) from balsam, all apparently taken in hot-houses.

Walker's mention of the green spot at the base of each siphunculus and dark apices to the antennal joints clearly indicates that he was describing *solani*. The single aptera from *Villarsia* has been chosen as type (B.M. 613).

Aphis particeps Walker = ***Myzus persicae*** (Sulzer)

1848 *Zoologist*, 6, 2217.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1011.

Recorded together with four other species from *Cynoglossum officinale* near Fleetwood, Lancashire, in October, and described as follows:

'The wingless viviparous female. The body is pale brown, small, oval, shining, and rather flat: the antennae are pale yellow and longer than the body; the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow and rather more than one-fourth of the length of the body: the legs are pale yellow; the tips of the tarsi are black.'

The Catalogue indicates four specimens. Among the aphids said to have been taken from *Cynoglossum* (see *Cynoglossum* Group, p. 52) are an apterous viviparous female and three larvae of *Myzus persicae* which fit the description of *particeps* reasonably well, and agree also with the number of dry specimens given in the Catalogue. It is assumed that these are Walker's types (B.M. 284).

Aphis persequens Walker = ***Macrosiphoniella (Phalangomyzus) persequens*** (Walker)

1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 2, 421: *Aphis ulmariae* partim.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1044: *Aphis persequens*.

1931 Hille Ris Lambers, D., *Tijdschr. Ent.*, 74, 172: *Macrosiphoniella pseudolineata*.

1938 Hille Ris Lambers, D., *Temminckia*, 3, 27: *Macrosiphoniella pseudolineata*.

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphoniella pseudolineata*.

1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 166: *Paczoskia (Phalangomyzus) persequens*.

1952 Stroyan, H. L. G., *Entomologist*, 85, 256: *Macrosiphoniella persequens*.

Originally described as follows:

'*Viridis, ovata, convexa; antennae gracillimae, corpore longiores; cornicula corporis quadrante longitudine; pedes longi, graciles; alae hylalinae.*

The viviparous female. Allied to *A. Ulmariae*. Pale green, oval, convex: front narrow: feelers very slender; first joint stout, seated on a protuberance; fourth much shorter than the third; fifth a little shorter than the fourth; sixth not half the length of the fifth; seventh longer than the third: abdomen with a very short style: nectaries slender, as long as one-fourth of the body: legs long and slender.

The viviparous winged female. Wings colourless; veins pale; distance between the first and second veins much more than twice farther at the tips than at the base; third a little nearer to the second at the base than at the tip, a little nearer to the second at the base than the second is to the first; first fork much nearer to the second fork than to the third vein, not nearer to the third vein than the third is to the second; second fork as near to the fourth vein as to the

first fork; fourth vein slightly curved, much nearer to the tip of the second fork than to the tip of the rib-vein. From the Tansy. Length of the body $1\frac{1}{4}$ line; of the wings 2 lines.

Var. Second and third veins united by a cross-vein; fourth wanting towards the tip. England.'

No specimens are indicated and none named *persequens* have been found. Walker (1848) described *Aphis ulmariae* Schrank (i.e. *Acyrtosiphum pisum* (Harris)). After listing a number of its hosts and mentioning its preference for leguminous plants, he stated: 'It feeds also on *Artemisia absinthium* and *Tanacetum vulgare*.' That he was here confusing the large, green aphids of the subgenus *Phalangomyzus* with *pisum* is understandable, and is proved by two of his slides, which are labelled *ulmariae* but contain *Phalangomyzus oblonga* (Mordvilko) from *Artemisia absinthium*, and another *Phalangomyzus* species from *Tanacetum vulgare*. His statement (above) that *persequens* is 'allied to *ulmariae*' adds weight to the assumption that the specimens from *Tanacetum*—an apterous male and some larvae—are his types of *persequens*.

LECTOTYPE. Apterous male. 'Ulmariae. Tansy. Southgate. Oct. 13—[18]47.'

H.D. 243. Fig. 10.

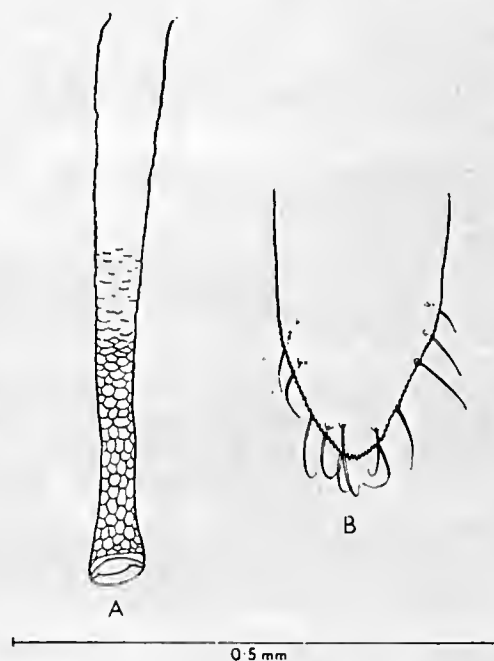


Figure 10. *Macrosiphoniella persequens* (Walker),
lectotype, apterous male, H.D. 243.
A. Siphunculus; B. Cauda.

Morphology: body length: 3.16 mm. Whole antenna: 5.02 mm.; III: 1.14, IV: 1.14, V: 0.98, VI: 0.30 + 1.08 mm.; secondary rhinaria on III: 44, 43; on IV: 17; on V: 17 (joints IV–VI missing on left antenna). Ultimate rostral joint: 0.12 mm., secondary hairs not visible; siphunculi: 0.66, 0.71 mm., length of reticulated area ± 0.30 ; cauda 0.32 mm. with 12 hairs. Second joint of hind tarsus 0.20 mm.; cephalic hairs slender with very slightly expanded apices, 0.06 mm. long.

This specimen differs from males of *oblonga* in having about half the number of secondary rhinaria on the third antennal joint; the ultimate rostral joint is blunt, not rostrate; the cauda is shorter and more U-shaped and with half the number of hairs (± 22 in *oblonga*); the siphunculi are longer in proportion to the cauda (more than 2:1 as against 8:7 in *oblonga*).

Aphis persola Walker = ? ***Myzus persicae*** (Sulzer)1848 *Zoologist*, 6, 2246.1852 *List Homopt. Ins. Brit. Mus.*, 4, 1014.

Recorded from *Chrysanthemum segetum*, and said also to feed on *Anagallis arvensis*, near Fleetwood, Lancashire, in early October, and described as follows:

'The winged viviparous female. While a pupa the body is small, elliptical, rather flat, pale green, and slightly mottled with darker green: the antennae are black, pale yellowish green towards the base, and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale green, with black tips, slightly spindle-shaped, and as long as one-sixth of the body: the legs are pale green; the tarsi and the tips of the tibiae are black.

It feeds also on the scarlet pimpernel (*Anagallis arvensis*).'

The Catalogue indicates a single dry specimen. No specimens named *persola* have come to light, but it seems probable that the type of *persola* is one of the batch of specimens placed in the Dry Collection over the name *chrysanthemi* (see p. 42). The description could apply to a nymph of *Myzus persicae*, of which two are available in this sample, or to a nymph of *Hyperomyzus lactucae* (L.) which is also present, but less likely to be found associated with the host plants recorded for *persola*. (B.M. 233).

Aphis persorbens Walker = ***Brachycaudus helichrysi*** (Kaltenbach)1849 *Zoologist*, 7, app. xxxvii.1852 *List Homopt. Ins. Brit. Mus.*, 4, 1020.

Recorded from *Prunus domestica* in early April, and described as follows:

'The wingless viviparous female. The body is oval, convex, shining, grass-green or dull pale green, sometimes prettily mottled with red or with crimson, and like a ripe plum in colour: the antennae are pale green, darker towards the tips, and less than half the length of the body: the eyes are dark brown: the rostrum is pale green with a brown tip: the tubes are not more than one-twentieth of the length of the body: the legs are pale green; the tarsi and the tips of the tibiae are brown: the limbs are white for a while after the skin has been shed.

Found before the middle of April.'

The Catalogue indicates no specimens and none named *persorbens* have been found in the Collections. The description suggests a fundatrix of *Brachycaudus helichrysi*. A Walker slide in the B.M. (Knowles) Collection (B.M. 637), dated April 1847 but unnamed, contains a single fundatrix of this species, but the host is given as sloe, not plum. However, as this is the only specimen of *helichrysi* recorded by Walker in April, and as it agrees well with his description, it is here regarded as his type of *persorbens*, which therefore falls as a synonym of *helichrysi* Kaltenbach.

Aphis picta Walker = ? ***Aphis sambuci*** Linnaeus1849 *Zoologist*, 7, app. xlvii.1852 *List Homopt. Ins. Brit. Mus.*, 4, 1024.

Recorded from *Sambucus nigra*, near Newcastle in mid-September, and described as follows:

'The wingless viviparous female. The body is elliptical, convex, dull yellow, varied with purple: the antennae are dull yellow, and hardly half the length of the body: the rostrum is dull yellow; its tip and the eyes are black: the tubes are dark yellow and hardly one-tenth of the

length of the body: the legs are pale yellow and rather short: the knees, the tarsi, and the tips of the tibiae are darker.'

The Catalogue indicates four dry specimens presented by Hardy, but no specimens named *picta* or identifiable with the description have come to light. The identity of Walker's specimens collected from *Sambucus* is discussed under *exul* (p. 70). Jacob (1949, p. 90) suggested that *picta* was described from an old oviparous female of *sambuci*.

Aphis pilosa Walker = ? *Cryptaphis poae* (Hardy)

1849 *Zoologist*, 7, app. liv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1027.

Recorded from *Digitalis purpurea* near Carlisle at the end of November and described as follows:

'The wingless viviparous female. The body is very small, rather short and broad, oval, convex, shining, pale brown and hairy above, pale red beneath: the antennae are black, pale red at the base, and longer than the body: the rostrum is pale red; its tip and the eyes are black: the tubes are pale red, with black tips, and nearly one-fourth of the length of the body: the legs are dull yellow; the tarsi and the tips of the tibiae are black; the tips of the thighs are brown.'

The Catalogue indicates no specimens, and none identifiable with *pilosa* have been found.

Walker's description suggests *Cryptaphis poae* (Hardy, 1850, p. 788). Many of the aphids received by Walker from the north of England were sent by Hardy, and it is possible that there may have been among them an aptera of *poae* which has since been lost. Walker listed *poae* in the Catalogue (p. 1038) but indicated no specimens. In the Dry Collection over the name *poae* there were several aphids, but no specimens of *poae* are among them, nor any that correspond with the description of *pilosa*. In any case *Aphis pilosa* Walker is pre-occupied by *Aphis pilosa* Zetterstedt, 1840.

Hardy's original description of *poae* appeared in the 1850 issue of the *North British Agriculturist and Journal of Horticulture*, p. 788. Copies of this issue appear to be very rare, and as Hardy's account is of considerable historic interest, it is reproduced below.

'4. APHIS POAE. *New Species*.

On the 17th of August I met with this neat and delicate species, which is one of the smallest of the family, at the edges of stones in dampish ground, among *Poa trivialis* (Common Meadow Grass) and *Holcus mollis* (Creeping Soft Grass). It is not properly a root aphid, but feeds upon the blanched stalks of these grasses, immediately above the surface of the ground; standing with its legs half stretched out, and its trunk fixed in the rind. It is extremely scarce and local, and I have only seen the wingless female.

This is ovate, or globose ovate, with the head and thorax shortly oblong, and the apex of the body peaked; convex, shining; of a tarnished yellowish white; with some fuscous stains on the abdomen, and occasionally with a faint pink tinge; rather thickly hirsute, the hirsuties arising from numerous minute tubercles crossing the abdominal segments; a few also on the thorax; sometimes these tubercles are fuscous, when they are seen to be not quite regularly distributed; lateral edges of the thorax and abdomen likewise tuberculated; crown of the head unequal, front considerably pubescent, excavated between the tubercles on which the antennae stand, with a slight ridge in the concavity; antennae very long and gracile, considerably longer than the body, curved over it as it walks, like those of some long-horned beetles (*Longicornes*), slightly pubescent, rather duskier than the body; 1st

joint, thickish and short; 2d, narrower, short, conic; 3d, long and slender; 4th, shorter than the 3d; and the 5th than the 4th; 6th, short; 7th, again long and hair-like, and exceeding the 3d in length; eyes dark brown; sides of the abdomen slightly margined; honey-tubes long and slender, tapered from the base upwards, the tip with a slight dusky ring; trunk short, reaching a short way beyond the base of the middle legs, its base slightly testaceous, and its tip black; belly smooth, dullish, the apex with a faint fuscous patch; legs long and gracile, nearly concolorous, the feet alone being dusky, long pubescent; the middle and hinder legs placed considerably apart. Length about $\frac{1}{2}$ a line. When young, the shape is more cylindric, the antennae are abbreviated, and the joints of the legs are slightly dusky; the colour is whiter and more shining; and the upper surface is crossed with small dusky tubercles or dots in rows. This species appears to be allied to *Aphis Galeopsidis* of Kaltenbach.'

An up-to-date account of the same species is given by Hille Ris Lambers (1947, *Temminckia*, 7, 298), who rediscovered it and described it as new under the name *Cryptaphis setiger*. Later, having seen Hardy's description for the first time, he realised that *setiger* was in fact *poae*, and published the correction in 1956 (*Tijdschr. Ent.*, 98, 229).

Aphis pollinosa Walker: *nomen dubium*

1849 *Zoologist*, 7, app. lii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1026.

Recorded from *Epilobium* (species not stated), without date or locality, and described as follows:

'*The wingless viviparous female*. The body is rather small, oval, plump, deep velvet-like green, powdered with white: the limbs are white: the antennae have black tips and are shorter than the body; the tip of the rostrum and the eyes are black: the tubes are nearly one-sixth of the length of the body: the legs are dull white and moderately long; the tarsi are black.

Var. 1. The knees and the tips of the shanks are black.

Var. 2. The body is mottled with pale green.

Var. 3. The body is pale green.

Var. 4. The legs are pale yellow; the tarsi and the tips of the tibiae are brown.

The winged viviparous female. While a pupa it resembles the wingless *Aphis* in colour, but is narrower, more flat, and less velvet-like: the rudimentary wings are white or black. The winged insect is deep black: the abdomen is greenish black: the eyes and the antennae are black, and the latter are much shorter than the body: the rostrum is yellow, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are black: the tibiae and the fore thighs are yellow; their tips are black: the wings are slightly tinged with gray and are much longer than the body; the squamulae are dull white; the stigmata and the veins are dark brown.'

The Catalogue indicates no specimens and none identifiable with *pollinosa* have been found. Walker's aphids from *Epilobium*, including *pollinosa*, are discussed on pp. 63-65.

Aphis polygoni Walker = ***Aspidaphis adjuvans*** (Walker)

1848 *Zoologist*, 6, 2249.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1015.

Recorded from *Polygonum aviculare* near Newcastle in early October (collected by Hardy), and described as follows:

'*The wingless oviparous female*. Sluggish, small, dull brown, brownish yellow on each side, fusiform, granulated, narrow, rather flat: the front of the head is notched: the antennae are pale yellow, brown at the base, black towards the tips, and nearly one-fourth of the length

of the body; the first and the second joints are brown; the third and fourth are white; the seventh is fully as long as the sixth: the rostrum is pale yellow; its tip and the eyes are black: the abdomen is shorter than the thorax, which is much developed; the legs are short and pale yellow; the tips of the tarsi are black; the hind tibiae are brown.

The wingless male. It is smaller and more depressed than the female; the antennae are black and about half the length of the body.'

The Catalogue indicates ten dry specimens. In the Dry Collection over the name *Aphis polygoni* and with the label *Polygonum aviculare* were four oviparae and one male of *Aspidaphis adjuvans*, now mounted, which are undoubtedly the types of *polygoni*. A lectotype has been selected (B.M. 704). The name *polygoni* is a synonym of *adjuvans* (see p. 21).

Aphis potentillae Walker = **Chaetosiphon (Pentatrachopus) potentillae** (Walker)

- 1848 Walker, F., *Zoologist*, 6, 2251: ? *Aphis galeopsidis*.
- 1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 3, 298: *Aphis galeopsidis* partim.
- 1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 6, 122: *Aphis potentillae*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 998: *Aphis potentillae*.
- 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 234: *Phorodon galeopsidis* partim.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 255: *Capitophorus potentillae*.
- 1933 Hille Ris Lambers, D., *Stylops*, 2, 173: *Pentatrachopus potentillae* partim.
- 1940 Thomas, I., and Jacob, F. H., *Ann. appl. Biol.*, 27, 234-247: *Pentatrachopus potentillae*.
- 1941 Thomas, I., and Jacob, F. H., *Proc. R. ent. Soc. Lond.* (B), 10, 107-123: *Pentatrachopus potentillae*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 67: *Pentatrachopus potentillae*.
- 1950 Börner, C., *Neue europäische Blattlausarten*, Selbstverlag., p. 11: *Pentatrachopus potentillae*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 119: *Passerinia potentillae*.
- 1953 Hille Ris Lambers, D., *Temminckia*, 9, 74: *Chaetosiphon (Pentatrachopus) potentillae*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 178: *Passerinia potentillae*.

Originally described (1850) as follows:

'*The viviparous wingless female.* The body is pale yellow, slightly convex, nearly elliptical: the front is narrow, each side of it being occupied by an angular protuberance: the feelers are fully as long as the body; the first and the second joints are angular; the fourth is much shorter than the third; the fifth is shorter than the fourth; the sixth is much shorter than the fifth; the seventh is slender and twice the length of the sixth: the nectaries are fully one-fifth of the length of the body, which has no tube at its tip: the legs are moderately long.

Length of the body $\frac{3}{4}$ line.

On *Potentilla anserina* in June.'

The Catalogue indicates no specimens, but a Walker slide in the B.M. (Knowles) Collection, labelled *potentillae* by him, contains apterae viviparae which are assumed to be his types. Walker (1848, 1849) recorded what he called *Aphis galeopsidis* Kaltenbach also from *Potentilla anserina*, but there is no evidence to suggest that he found anything other than *potentillae* on that plant.

LECTOTYPE. Apterous viviparous female. '*Potentillae. Potentilla anserina. Tottenham. Aug. 19—* [18]47.'

B.M. 722. Plate V, H

Colour: tergum unpigmented, pale. Antennae dusky, becoming slightly darker towards apices. Ultimate rostral joint brown. Legs more or less evenly pale brown, except bases of

femora which are pale. Siphunculi colourless. Cauda pale brown, colourless at base. *Morphology*: body length: 1.52 mm. Dorsal cuticle strongly sclerotic, rugose, the rugosities on thorax and abdomen taking the form of interlocking crescentic ridges; the vertex covered with small papillate projections. Cephalic hairs stout, strongly swollen at apex and base, 0.05–0.06 mm. long, arranged in 2 median longitudinal rows, the posterior pair duplicated: lateral frontal prominences distinct but not large, each with 3 hairs. Length of whole antenna: 1.71 mm.; III: 0.42, IV: 0.26, V: 0.26, VI: 0.13 + 0.47 mm.; first joint twice as broad as second, with 6 capitate hairs and 1 very short acute hair dorsally, second joint with 4 capitate hairs, third joint with 11 and 12 hairs, capitate but of very unequal size (0.01–0.035 mm. long), the largest ones on the basal half; fourth with 5 and 7 small, scarcely capitate hairs; fifth with 5 and 5; sixth with 2 and 2 very short acute or bluntly pointed hairs on the base. Ultimate rostral joint conical, 0.12 mm. long, with 4 (? 5) short, acute, secondary hairs. Legs slender, with some stout capitate hairs dorsally on the distal half of the femora and the proximal half of the tibiae, other hairs shorter, varying from slightly capitate to almost acute; first tarsal joints with 5 hairs; second joint of hind tarsus 0.09 mm. long. Siphunculi 0.40 and 0.42 mm. long, slender, cylindrical with expanded bases, coarsely imbricated, inwardly curved, with well-developed flange. Cauda 0.14 mm. long, bluntly conical, constricted at the base, with 4 lateral hairs and 1 median dorsal. Dorsal chaetotaxy: the hairs in the 2 spinal rows are mostly duplicated, similar in size and shape to those on the head; pleural hairs* (a single row on each side) are absent from the fifth and sixth abdominal tergites; pleuro-marginal and marginal hairs are absent from the sixth; the seventh tergite has 5 capitate hairs, and the eighth 6, none of these being larger than the cephalic hairs.

Aphis praeterita Walker = ***Aphis praeterita*** Walker

- 1849 Walker, F., *Zoologist*, 7, app. lii: *Aphis praeterita*; app. liii: *Aphis epilobiina*, var.?
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1026: *Aphis praeterita*; 1027: *Aphis epilobiina*.
 1855 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 143: *Aphis epilobii*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 152: *Aphis praeterita*; 210: *Aphis epilobiina*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 68: *Doralis praeterita*; p. 68: *Doralis epilobiina*.
 1950 Börner, C., *Neue Europäische Blattlausarten*, Selbstverlag, p. 8: *Doralina epilobiina*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, p. 87: ? *Cerosipha epilobiina*.

Originally recorded from *Epilobium* (species not stated) in early June, and described as follows:

'*The wingless viviparous female*. The body is small, oval, convex, light green: the antennae are pale yellow, with brown tips, and as long as one half of the body: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are pale green, with brown tips, and as long as one-eighth of the body: the legs are dull green and moderately long; the tarsi and the tips of the tibiae are brown.

The winged viviparous female. While a pupa it resembles the wingless form in colour: the legs are dull yellow; the tarsi are brown: the rudimentary wings are pale green. The winged insect is black, broad and stout: the borders of the prothorax are green: the abdomen is dark green: the antennae are black and shorter than the body: the mouth is green, with a black tip: the tubes are black: the legs are black; the fore thighs are yellow at the base: the wings are colourless and much longer than the body: the squamulae are pale yellow; the stigmata are pale brown; the veins are brown.

In the beginning of June.'

The Catalogue indicates no specimens and none named *praeterita* have been found. The description of *praeterita* resembles that of *epilobiina* (p. 66) so closely that one can hardly escape the conclusion that both refer to the same species: if so, *epilobiina* sinks as a synonym of *praeterita*, which has page priority. Walker collected *epilobiina* from *Chamaenerion angustifolium*, and alate and apterous specimens exist in the Collections.

Koch's description and figure (1855, p. 143, fig. 194) of *epilobii* are of a green, non-pulverent (?) aphid with black siphunculi, living on *Chamaenerion angustifolium*. This cannot be *epilobii* Kaltenbach, which is dark grey, pulverulent, with pale siphunculi, and whose host is *Epilobium montanum*. Koch's species is probably *praeterita*.

Börner's use of the name *praeterita* (1952, p. 79) for *epilobii* Kaltenbach, *non* Kittel, is believed to be incorrect for reasons given on p. 64.

LECTOTYPE. Apterous viviparous female. 'Epilobiina. E. angustifol. Southgate. Aug. 24—[18]47.' B.M. 329.

Colour: head pale yellowish brown; body almost colourless; antennal joint VI pale yellowish brown, remainder of antenna colourless. Rostrum pale with the 2 apical joints pale brown. Legs pale except tarsi and apices of tibiae which are brown. Siphunculi, cauda, and anal plate brown. *Morphology*: Body length: 1.60 mm. Whole antenna (right): 1.28 mm.; III: 0.31, IV: 0.19, V: 0.19, VI: 0.10 + 0.36 mm.; joints III–VI more or less evenly imbricated, III with 9 acute hairs (0.015 mm.), IV with 5, V with 5, base of VI with 2. Frons weakly sinuate, cuticle of vertex with ornamentation consisting of rows of minute nodules arranged in a reticulate pattern; frontal hairs fine, acute, \pm 0.05 mm. Ultimate rostral joint 0.13 mm., with 2 secondary hairs. Legs slender, hairs acute, rather sparse, those on hind-tibiae reaching 0.035 mm.; first tarsal joints with 3, 3, 2 hairs; length of hind tarsus II: 0.11 mm. Dorsal cuticle of abdomen with pronounced reticulate pattern, similar to that on head but made up of continuous lines or ridges of cuticle, not nodules; dorsal abdominal hairs acute, up to 0.035 mm. Siphunculi thick, with broad base, tapering more or less evenly to apex, the diameter of which is less than half that of the base, evenly covered with short transverse rows of minute spinules, flange small, length: 0.30 mm. Cauda rather narrow, finger-shaped, constricted near the middle, with 6 lateral hairs; length: 0.18 mm. Small marginal tubercles on prothorax and abdominal segments I and VII.

Aphis prunaria Walker = ***Rhopalosiphum nymphaeae*** (Linnaeus)

1848 *Zoologist*, 6, 2250.

1850 *Ann. Mag. nat. Hist.* (2), 6, 121.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 998.

Walker (1848) described the apterous viviparous female and nymph from *Prunus domestica*, and later (1850), the apterous viviparous female (? fundatrix) from *Prunus spinosa*. The two descriptions are as follows:

1848:

'The wingless viviparous female. The body is dark red and covered with a white bloom, short, elliptical, and very plump: the antennae are black and nearly half the length of the body: the eyes and the rostrum are also black: the legs and the tubes are of the same colour, and the latter are as long as one-tenth of the body.

The winged viviparous female. While a pupa it resembles the wingless insect in colour, but is much more flat.

In the beginning of June.'

1850:

'The viviparous wingless female. The body is oval, very plump and convex, dark brown: the front of the head has three slight tubercles: the feelers are about one-fourth of the length of

the body; the first and the second joints are not angular; the fourth is much shorter than the third; the fifth is shorter than the fourth, and the sixth than the fifth; the seventh is a little longer than the sixth: the nectaries are slightly tapering and about one-fifth of the length of the body: the tube at the tip of the abdomen is rather long; the legs are short.

On the sloe in May.'

The Catalogue indicates five balsam mounts of Walker's. Three slides named *prunaria* by Walker exist, all containing specimens from *Prunus spinosa* at Southgate. One of these, dated April, 1847, contains fundatrices of *Phorodon humuli* (Schrank) (H.D. 383); the other two, of 7th June and 14th September respectively, contain alatae and nymphs of *Rhopalosiphum nymphaeae* (L.) (B.M. 723; H.D. 256). Both the descriptions clearly apply to *nymphaeae* and not to *humuli*, the apterae of which, including the fundatrices, are green; *prunaria* thus falls as a synonym of *nymphaeae*, as various authors have already stated.

An alate viviparous female has been marked as Walker's type (B.M. 723).

Aphis prunina Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1848 *Zoologist*, 6, 2250.

1850 *Ann. Mag. nat. Hist.* (2), 6, 120.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 998.

Walker (1848) described the apterous viviparous female of *prunina* from *Prunus domestica* in April, and (1850) gave a fuller account, with three 'varieties', of the same morph, together with a description of the alate female, recorded this time from *Prunus spinosa*. The descriptions are as follows:

1848:

'*The wingless viviparous female.* The body is grass-green, elliptical, and slightly convex: the antennae are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow, with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the tarsi and the tips of the tibiae are brown.

At the end of April.'

1850:

'*The viviparous wingless female.* The body is nearly elliptical, convex, thick, highly arched, grass-green, smooth, shining: the feelers are setaceous, pale yellow, darker towards their tips, and about one-third of the length of the body; the fourth joint is much shorter than the third, but more than half its length; the fifth is shorter than the fourth; the sixth is a little shorter than the fifth; the seventh is nearly as long as the third: the eyes are dark brown: the mouth is pale green with a brown tip: the nectaries are pale yellow, less than one-twelfth of the length of the body: the legs are pale yellow; the feet and the tips of the shanks are brown. In the middle of May.

1st var. A dark green stripe on the back: feelers pale green, brown towards the tips, and nearly one-fourth of the length of the body: the nectaries are pale green with brown tips, and about one-twentieth of the length of the body: the legs are pale green with brown feet.

2nd var. The body is pale greenish yellow, mottled with green, and having a green stripe on the back: the feelers are greenish white with brown tips, and less than one-third of the length of the body: the eyes are dark red: the mouth and the legs are greenish white, and the former has a brown tip; the feet are black: the nectaries are very pale green with brown tips, and nearly one-sixth of the length of the body.

3rd var. The body is small, oval, convex, plump, dull green: the front is slightly convex, and has no tubercles: the feelers are rather less than half the length of the body; the first and

the second joints are not angular; the fourth is much shorter than the third; the fifth is shorter than the fourth, and the sixth is shorter than the fifth; the seventh is very slender and longer than the fourth: the nectaries are not more than one-twentieth of the length of the body: the legs are rather short.

The viviparous winged female. The second vein diverges slightly from the first, but is nearly parallel to the third; the forks of the latter are variable in situation, but the second fork is usually rather long; the fourth vein is much curved in the early part of its course, and the angle of the brand whence it springs is very slight.

Length of the body $\frac{1}{2}$ – $\frac{2}{3}$ line; of the wings 2 lines.

Common on the sloe in May.'

The Catalogue adds wing venation details and indicates sixteen balsam mounts. Six slides labelled *prunina* by Walker exist (B.M. 740–744; H.D. 208): all contain apterous and alate viviparous females of *Brachycaudus helichrysi* (Kaltenbach) from *Prunus domestica* or *P. spinosa*. The name *prunina* thus falls as a synonym of *helichrysi*, as Theobald and later authors have stated. (Type on slide B.M. 740.)

Aphis pulvera Walker = **Macrosiphoniella pulvera** (Walker)

- 1848 Walker, F., *Zoologist*, 6, 2218: *Aphis pulvera*; 2218: *Aphis amica*; 2218: *Aphis collega*.
- 1849 Walker, F., *Zoologist*, 7, app. 1: *Aphis atomaria*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1011: *Aphis pulvera*; 1011: *Aphis amica*; 1011: *Aphis collega*; 1025: *Aphis atomaria*; 1044: *Aphis reducta*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 171: *Macrosiphoniella pulvera* partim.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 631: *Macrosiphoniella pulvera* partim.
- 1938 Hille Ris Lambers, D., *Temminckia*, 3, 29: *Macrosiphoniella pulvera*.
- 1945 Kloet, G. S., and Hineks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphoniella pulvera*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 168: *Macrosiphoniella pulvera*.

Originally recorded, together with *Aphis amica*, *A. collega*, *A. commoda*, and *A. frequens*, from *Artemisia maritima* in early October near Fleetwood, Lancashire, and described as follows:

'*The wingless viviparous female.* The body is oval, rather small, slightly convex, pale green, very thickly covered with white powder: the antennae are pale yellow, black towards the tips, and shorter than the body: the eyes are bright red; the rostrum and the tubes are pale yellow, with black tips, and about one-eighth of the length of the body: the legs are pale yellow and moderately long; the knees, the tarsi and the tips of the tibiae are black; the hind tibiae are brown for nearly half their length from the base.'

The Catalogue indicates four dry specimens of *pulvera*. Over this name in the Dry Collection were six males, six oviparae, and three larvae of *Macrosiphoniella pulvera*, together with eleven oviparae and larvae of *Cuernavaca (Holcaphis) frequens* (Walker) and an apterous viviparous female and ovipara of *Capitophorus horni* Börner, ssp. *gynoxantha* H.R.L. The specimens of *frequens* had presumably been left with the rest of the sample from *Artemisia maritima*, but those of *gynoxantha* bore a label '*Cnicus arvensis* leaves' and evidently belong to a different collection.

Walker described this species five times under different names. From his descriptions it seems probable that the males from the Dry Collection represent *amica*, the male only of which he described, and the oviparae perhaps both *pulvera* and *collega*, although the number of specimens available exceeds the total of those indicated for these species in the Catalogue. There is no doubt

about the identity of *reducta*: two balsam mounts so named by Walker exist (B.M. 789; H.D. 121), and both contain *Macrosiphoniella pulvera*. The reasons for regarding *atomaria* also as a synonym of *pulvera* are set out above (p. 31).

LECTOTYPE. Oviparous female. *A. pulvera*. From Dry Collection.

B.M. 745. Plate V, J.

Colour: This specimen has been strongly macerated and lightly stained in fuchsin. Body without natural colour: head light brown, darker anteriorly: antennae with pale bases, becoming progressively darker towards apices: 2 apical rostral joints brown. Legs pale brown, slightly darker at the knees, tarsi and tibial apices dark brown; sensoriate portions of hind tibiae dark brown. Siphunculi brown with pale bases. Cauda and anal plate brown. *Morphology*: body length: 2.25 mm. Head smooth, lateral frontal prominences scarcely perceptible, cephalic hairs long (up to 0.07 mm.), fine, with blunt or very slightly swollen apices. Length of whole antenna: 1.84 mm. III: 0.39, IV: 0.31, V: 0.30, VI: 0.17+0.46 mm.; third joints with 2 and 4 small round secondary rhinaria; antennal hairs 0.020–0.025 mm. long, slightly expanded at apex; base of third joint 0.03 mm. in diameter. Rostrum reaching just past third coxae, apical joint narrow, tapering to acute apex, 0.15 mm. long, with 4 long fine lateral secondary hairs and 2 shorter dorsal ones. First tarsal joints with 3, 3, 3 hairs; second joint of hind tarsus 0.15 mm. long; pseudosensoria confined to proximal half of hind tibia which is swollen to nearly twice the diameter of the distal half. Abdominal hairs rather numerous, 0.05–0.07 mm. long, not arising from sclerites. Siphunculi 0.25 mm. long, narrowest in the middle, expanding slightly towards the apex, rather more towards the base; apical half with 10–12 rows of reticulations, flange small. Cauda 0.28 mm. long, rather broad, scarcely constricted, apex acute, with 22 hairs.

Aphis quaerens Walker = ***Cryptomyzus galeopsidis*** (Kaltenbach)

1849 *Zoologist*, 7, app. xlviii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally recorded from *Galeopsis ladanum* and described as follows:

'The winged viviparous female. While a pupa the body is elliptical and bright yellow: there is a row of green spots along the middle of the abdomen, and two or three on the thorax: in the winged state the head and the thorax are black: the antennae and the tubes are of moderate length: the legs are yellow; the tarsi, the tips of the thighs and of the tibiae are darker: the wings are colourless; the stigmata and the veins are brown.'

The Catalogue adds venation details and indicates one dry specimen. No specimens named *quaerens* occur in the Collections, but an alate viviparous female of *Cryptomyzus galeopsidis* (Kaltenbach) with a label '*Galeopsis ladanum*' in Walker's hand, mounted from the Dry Collection by Laing (B.M. 749), is undoubtedly the type of *quaerens*, as Hille Ris Lambers (1933, p. 173) has already observed.

Aphis ranunculina Walker = ***Tubaphis ranunculina*** (Walker)

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1046: *Aphis ranunculina*.

1913 Theobald, F. V., *J. econ. Biol.*, 8, 151: *Macrosiphum ranunculinum*.

1919 Mordvilko, A. K., *Faune de la Russie, Petrograd*, 1(2), 239: *Acyrtosiphon ranunculinum*.

1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 316: *Myzus ranunculinus*.

1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Myzus ranunculinus*.

1947 Hille Ris Lambers, D., *Temminckia*, 7, 312: *Tubaphis ranunculina*.

1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 129: *Tubaphis ranunculina*.

1954 Stroyan, H. L. G., *Proc. R. ent. Soc. Lond. (B)*, 23, 15: *Myzus (Tubaphis) ranunculina*.

Described as follows:

'*Pallide flava, fere elliptica; fronte angusta, utrinque tuberculata; antennis corpore paullo longioribus; corniculis pedibusque sat longis.*

Pale yellow, almost elliptical: front narrow: feelers slender, a little longer than the body; first joint seated on a slight tubercle; fourth more than half the length of the third; fifth shorter than the fourth; sixth much shorter than the fifth; seventh more than twice the length of the sixth; nectaries about one-sixth of the length of the body: legs slender, rather long. Length of the body $\frac{3}{4}$ line.

a-h. England. (In Canada Balsam.) From Mr. Walker's collection.'

Of the eight mounts indicated in the Catalogue, three remained in the Collections, the specimens from one of which have since been remounted on two slides, making four (B.M. 781-784). In addition an adult alate and an apterous viviparous female of *ranunculina* were present in the Dry Collection over the name *ranunculi* Kaltenbach.

Aphis ranunculina Walker is the type of the genus *Tubaphis* Hille Ris Lambers, 1947.

LECTOTYPE. Apterous viviparous female. 'Ranunculina. R[anunculus]. Southgate. Aug. 23—[18]47.'

B.M. 781. Fig. 11

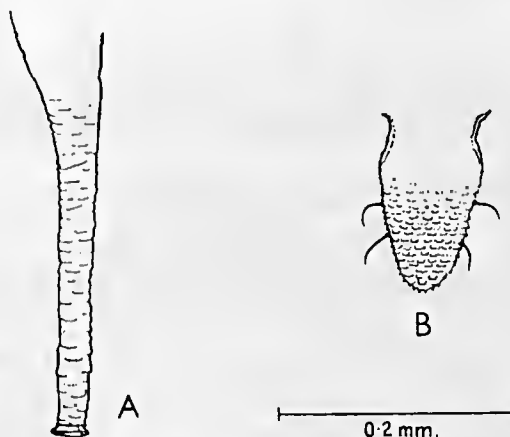


Figure 11. *Tubaphis ranunculina* (Walker),
lectotype, apterous viviparous female,
B.M. 781. A. Siphunculus; B. Cauda.

Body and appendages of macerated specimen uniformly colourless. *Morphology*: body length: 1.68 mm. Head minutely spinulose dorsally and ventrally, lateral frontal prominences well developed, but ill-defined in this specimen due to distortion; cephalic hairs short (± 0.015 mm.), blunt. First antennal joint broader than long, ventral surfaces of first 4 joints imbricated, fifth and sixth joints imbricated all over. Length of whole antenna: 1.73 mm.; III: 0.42, IV: 0.31, V: 0.28, VI: 0.16 + 0.37 mm.; antennal hairs ± 0.01 mm., base of third joint 0.025 mm. in diameter. Rostrum reaching past second coxae, ultimate joint 0.10 mm. long, bluntly conical, with 6 secondary hairs. First tarsal joints with 3, 3, 3 hairs; second joint of hind tarsus 0.09 mm. long. Dorsal abdominal hairs very short (± 0.01 mm.), blunt. Siphunculi 0.37 mm. long, slender, irregularly imbricated, expanded at base, very slightly expanded also near apex immediately behind apical constriction below the flange. Cauda 0.16 mm. long, with pronounced basal constriction, tapering to rounded apex, with 4 lateral hairs.

Aphis reducta Walker = **Macrosiphoniella pulvera** (Walker)

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1044.

Described as follows:

'Viridi-fulva, convexa, subovata; antennae graciles, corpore multo longiores; cornicula corporis decima longitudine; pedes longi, graciles.'

The viviparous wingless female. Greenish-tawny, convex, pear-shaped; front straight, bristly; feelers slender, much longer than the body; fourth joint much shorter than the third; fifth a little shorter than the fourth; sixth a little more than half the length of the fifth; seventh almost as long as the fifth and sixth: abdomen more than twice the breadth of the chest, with a style at the tip: nectaries a little shorter than the style, and about one-tenth of the length of the body: legs long and slender. From the Sea Wormwood. Length of the body 1 line.

England.'

No specimens are indicated in the Catalogue: nevertheless two slides exist named *reducta* by Walker (B.M. 789, H.D. 121). Both contain apterae viviparae of *Macrosiphoniella pulvera* (Walker) from *Artemisia maritima* at Sandwich, Kent, September, 1848. The name *reducta* therefore falls as a synonym of *pulvera*. (Type on slide B.M. 789.)

Aphis redundans Walker = **Myzus persicae** (Sulzer)

1849 *Zoologist*, 7, app. xxxii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1017.

Originally recorded from *Crambe maritima* and described as follows:

'The wingless viviparous female. The body is small, oval, slightly convex, velvet-like, greenish yellow: the antennae are pale yellow, black towards their tips, and more than half the length of the body: the eyes are red: the rostrum is pale yellow with a black tip: the tip of the abdomen and the tubes are pale yellow; the latter have black tips and are about one-fifth of the length of the body: the legs are pale yellow; the thighs are tinged with green; the feet are black.

The winged viviparous female. The body is black: the abdomen is tinged with green: the antennae are nearly as long as the body: the rostrum is dark yellow with a black tip: the thighs at the base, and the shanks excepting their tips, are yellow: the wings are very much longer than the body; the wing-ribs are yellow; the brands and the veins are pale brown.

Found on the sea-kale in autumn, near Newcastle, by Mr. Hardy.'

The Catalogue indicates no specimens. In the Dry Collection over the name *redundans* were two apterae viviparae and four larvae of *Myzus persicae* (Sulzer) and an ovipara of *Acyrtosiphon auctus* (Walker). The description and the host record are consistent with the characters and habits of *Myzus persicae*, and the name *redundans* is regarded as a synonym of *persicae*, as Laing (1925, p. 123) and Theobald (1926, p. 318) have already stated. (Type on slide B.M. 790.)

The ovipara of *Acyrtosiphon auctus*, which is almost perfect, is regarded as a topotype of *auctus* (see p. 33).

Aphis relata Walker: *nomen dubium*1849 *Zoologist*, 7, app. xlv.1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Originally recorded from *Rumex*, without locality or date, and described as follows:

'*The wingless viviparous female.* The body is short, elliptical, rather flat, light yellowish green: the antennae are pale yellow, with brown tips, and not half the length of the body: the eyes are brown: the mouth and the nectaries are pale yellow, with brown tips, and the latter are hardly more than one-twelfth of the length of the body: the legs are pale yellow and moderately long; the feet and the tips of the shanks are brown.'

The Catalogue indicates no specimens, and none identifiable with *relata* have been found in the Collections.

Dr. D. Hille Ris Lambers has suggested to the writer that Walker's description of *relata* could apply to *Brachycaudus rumexicolens* (Patch), which is fairly common on *Rumex* in England. This is possible, although the colour characters given by Walker are hardly typical of *rumexicolens*, in which the siphunculi are, moreover, much shorter than one-twelfth of the body length. Two other possibilities, suggested by Mr. H. L. G. Stroyan, are *Aphis etiolata* Stroyan (host: *Rumex acetosella*), the characters of which agree well with Walker's description of *relata* except that the siphunculi are usually more than a tenth of the body length; and *Aphis nasturtii* Kaltenbach, in which again the siphunculi, and in this instance also the antennae, are usually longer than Walker described.

In the absence of more concrete evidence it is preferred to regard *relata* as a *nomen dubium*.

Aphis robusta Walker: *nomen dubium*1849 *Zoologist*, 7, app. xliii.1852 *List Homopt. Ins. Brit. Mus.*, 4, 1021.

Originally recorded from *Pastinaca sativa*, without date or locality, and described as follows:

'*The winged viviparous female.* The body is deep black, larger and stouter than that of *A. capreae*, which also infests the parsnip: the antennae are black and much shorter than the body: the rostrum is green, with a black tip: the tubes are black and about one-eighth of the length of the body: the legs are black and moderately long; the tibiae, except the tips, are yellow: the wings are colourless and nearly twice the length of the body; the squamulae are pale yellow; the stigmata are dull buff; the veins are brown, and their tips are slightly clouded.

The wingless viviparous female. When young it is very dark green or almost black: the antennae and the legs are short and stout: the tubes are very stout: the body soon becomes quite black, and increases in breadth and thickness.'

The Catalogue indicates no specimens, and none named *robusta* have been found in the Collections.

Theobald (1927, p. 309) quoted Walker's description in full, and stated that he also could find no type of *robusta* in the British Museum Collections.

Börner (1952, p. 222) suggested that *robusta* is probably a synonym of *subterranea* Walker, in which case the former would take priority. But this seems unlikely, because the siphunculi of *robusta* are stated to be about one-eighth of the body length, which would make them much too long for *subterranea*, and the wings of *robusta* are said to have veins with clouded tips, which do not occur in *subterranea*. Walker, moreover, made no mention of *robusta* infesting the roots of parsnip, although he stated this clearly in the case of *subterranea*. The name *robusta* is here regarded as a *nomen dubium*.

Aphis rufula Walker = **Schizaphis rufula** (Walker)

- 1848 Walker, F., *Zoologist*, **6**, 2218: *Aphis consors* partim (aptera).
 1849 Walker, F., *Zoologist*, **7**, app. xlvii: *Aphis rufula*.
 1850 Walker, F., *Ann. Mag. nat. Hist.* (2), **5**, 389: *Aphis pruni* partim (ovipara); 389: *Aphis pruni* partim (2nd var.).
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1023: *Aphis rufula*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **2**, 211: *Aphis rufula*.
 1939 Hille Ris Lambers, D., *Zool. Meded.*, **22**, 91: *Schizaphis geijskesi*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects.*, p. 67: *Schizaphis geijskesi*; p. 68: *Doralis rufula*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft, **3**, 71: *Schizaphis geijskesi*.
 1956 Eastop, V. F., *Ent. mon. Mag.*, **92**, 268: *Schizaphis geijskesi*.
 1957 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, **109**, 326: *Schizaphis geijskesi*.

Originally recorded from *Salsola kali*, without date or locality, and described as follows:

'The wingless viviparous female. The body is small and red: the antennae are red, black towards their tips, and a little shorter than the body: the mouth is pale red, with a black tip: the tubes are rather short: the legs are red: the knees, the tarsi and the tips of the tibiae are black.'

The Catalogue indicates three dry specimens. Three specimens in the Dry Collection, unnamed but with the label '*Salsola kali*' in Walker's hand, were mounted by Laing who presumed them to be *rufula* Walker, and sent the slide to Theobald who redescribed the species (1927). The specimens are larvae—one of an ovipara very near its last moult—of the species later described by Hille Ris Lambers (1939) as *Schizaphis geijskesi* nov. spec. from *Ammophila arenaria* and *Agropyron pungens* (*littorale*). The evidence in favour of these specimens being those described by Walker as *rufula* seems sufficient to justify their acceptance as his types. The name *geijskesi* thus falls as a synonym of *rufula* Walker.

Börner (1952, p. 83) on the evidence of Walker's host record erroneously applied *rufula* to *Pergandeida* (*Doralida*) *salsolae* (Börner, 1940).

It is probable that the three specimens of *rufula* are also those on which Walker based his '2nd variety' of *Aphis pruni* (1850) (i.e. *Hyalopterus pruni* (Geoffr.)), which he recorded from *Salsola kali* in early October near Fleetwood, and that later he decided the species was distinct and described it as *rufula*. There is no doubt that his description of the oviparous female of *Aphis pruni*, said to occur on *Elymus arenarius*, is based on *rufula*, for his types, two oviparous and one viviparous female labelled '*Elymus arenarius*', were in the Dry Collection over the name *pruni* F. (now mounted on slide B.M. 728).

Specimens of *rufula* occur too among the aphids said to have been taken from *Cynoglossum* and *Lycopsis*, also near Fleetwood, and are certainly topotypic, if not paratypic. An ovipara from this sample is probably the type of the 'apterous viviparous' female of *consors* Walker, which has been identified from the alata as *Myzus persicae* (Sulzer) (p. 47).

Although *Salsola* is not a host of *rufula*, this aphid occurs typically in littoral zones where *Salsola* and its normal host *Ammophila* are commonly found together.

LECTOTYPE. Last-stage larva of ovipara. '*Salsola kali*'. From Dry Collection.

B.M. 862.

Colour: head and body colourless. (Both antennae missing from this specimen.) Two apical joints of rostrum pale brown; legs more or less evenly pale brown, tarsi slightly darker; siphunculi pale with slightly darker apices; cauda colourless. *Morphology*: body elongate-oval, 1.99 mm. long. Head smooth, lateral frontal prominences weakly developed, rugose, projecting to same level as the median prominence which is also rugose: cephalic hairs fine, acute,

0.025 mm. long. Rostrum scarcely reaching third coxae; ultimate joint rather large, 0.14 mm. long, conical, with (probably) 4 secondary hairs (the exact number is difficult to determine because the hairs of the adult are visible through the cuticle of the larva). Legs rather short and stout; first tarsal joints with 3, 3, 2 hairs; second joint of hind tarsus 0.12 mm. long; hind tibia with pseudosensoria (faintly visible through cuticle) over three-quarters of their length. Marginal tubercles present on first and seventh abdominal segments; dorsal abdominal hairs fine, acute, 0.015 mm. long; eighth tergite with 4 hairs. Siphunculi 0.16 mm. long, tapering slightly towards apex, smooth, without flange. Cauda (of adult) apparently with 9 hairs.

Tranaphis salicivora (Walker) = ***Tranaphis capreae*** (Mosley)

- 1841 Mosley, O., *Gdnrs' Chron.*, 1, 748: *Cinara capreae*.
- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), 1, 453: *Aphis salicivora*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 952: *Aphis salicivora*.
- 1870 Walker, F., *Zoologist* (2), 5, 1999: *Tranaphis salicivora*.
- 1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 134: *Chaitophorus salicivorus*.
- 1860 Passerini, G., *Gli Afidi*, etc., p. 32: *Chaitophorus salicivora*.
- 1912 Theobald, F. V., *Hastings and E. Sussex Nat.*, 2, 13: *Chaitophorus salicivorus*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 366: *Chaitophorus salicivorus*.
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 16: *Chaitophorus salicivorus*.
- 1930 Börner, C., *Arch. klass. phylog. Ent.*, 1, 126: *Tranaphis salicivora*.
- 1931 Hille Ris Lambers, D., *Mem. Mus. Stor. nat. Venez. trident.*, 1, 3: *Tranaphis salicivora*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 71: *Chaitophorus salicivorus*.
- 1950 Börner, C., *Neue europäische Blattlausarten*, Selbstverlag, p. 3: *Tranaphis capreae*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 53: *Tranaphis capreae*.

Walker's original description (1848) is as follows:

'*The viviparous wingless female*. The body is oval, flat, hairy, and yellow: the hairs on the sides of the body are very long: the front is hairy and slightly convex, and has no tubercles: the feelers are slender, setaceous, and nearly as long as the body; the fourth joint is much shorter than the third; the fifth is fully as long as the fourth; the sixth is shorter than the fifth, and increases in breadth from the base to the tip; the seventh is much more slender than the preceding joints, and is rather longer than the fifth and the sixth joints together: the eyes are red, and rather prominent: the tip of the mouth is brown, and reaches the middle hips: the nectaries are very short, and not more than one-twentieth of the length of the body: the legs are rather short; the tips of the feet are brown.

1st variety. The feelers are less than half the length of the body.

The oviparous wingless female. The body is spindle-shaped, and contains two eggs: the feelers are rather less than half the length of the body: the hind-shanks are not dilated.

The wingless male. It has a narrower body, and longer and stouter legs than the female: the body is nearly linear, and obtuse at the tip: the feelers are much stouter than those of the female; the fifth joint is shorter than the fourth; the sixth is much shorter than the fifth.

Length of the body $\frac{1}{3}$ – $\frac{1}{2}$ linc.

Sometimes above eight hundred insects of this species feed together under a single leaf of the willow, *S. caprea*, from the beginning of May till the end of October, the latter month being the time for the appearance of the male and of the oviparous female.'

The Catalogue contains the following additional details:

'The oviparous wingless female is lozenge-shaped, dark green, dull, smooth, and rather flat: the head is dull yellow: the hind part of the abdomen is pale yellow, and lengthened: the feelers are pale yellow, setaceous, black towards the tips, and about half the length of the body: the eyes are black and rather prominent: the legs are pale yellow: the knees, and the tips of the feet are black.

Var. The body is elliptical, flat, thin, shining, thinly clothed with white hairs, dull white, with a broad, irregular black stripe along each side: the feelers are white with brown tips, and less than half the length of the body: the legs are white; the tips of the feet are black.

a-z. England. (In Canada Balsam.) From Mr. Walker's Collection.'

Of the twenty-six mounts indicated in the Catalogue, thirteen still exist (B.M. 891-896, 901, 902; H.D. 81, 96, 221-223). Eleven of these are labelled *salicina*, which is a manuscript name only, and two *salicivora** (B.M. 901, 902). All contain the same species, collected in Southgate between July and October, 1847. In 1870 Walker erected the genus *Tranaphis* with *salicivora* as type. Mosley (1841), however, had described this species prior to Walker, and *capreae* Mosley therefore has priority. Mosley's description in the Gardeners' Chronicle is as follows:

'... *Cinara capreae*, a small species found under the leaves of the Sallow or Withy (*Salix caprea*). It is of a bright yellow colour, and covered all over, although not very thickly, with fine transparent hairs. The eyes are dark brown; the antennae about half the length of the body, setaceous, and of a darker colour at the extremity; tubercles very short, scarcely perceptible. Both sexes of this singular species are apterous; the male is much less than the female, and of a darker colour, often striped or spotted with dark-brown.'

As Mosley's types, if any, are unknown, a description of the lectotype of *salicivora* Walker is appended.

LECTOTYPE. Apterous viviparous female. '*Salicina*. Willow. Southgate. July 24—[18]47.'
B.M. 896.

Body and appendages of macerated specimen uniformly colourless. *Morphology*: body broadly oval, 1.30 mm. long, covered with hairs which are very variable in length, the majority stout with bifurcated apices, but also some which are simple and mostly confined to the ventral surface. The bifurcated hairs range from about 0.015 to over 0.15 mm. in length, and are arranged in transverse rows of usually 6 large hairs per segment interspersed with some shorter ones. Frons without lateral prominences; length of whole antenna: 0.70 mm.; III: 0.15, IV: 0.09, V: 0.09, VI: 0.08 + 0.22 mm., first joint with 3-4 short hairs, second with 2, remaining joints each with 1. Apical joint of rostrum bluntly conical with 2 secondary hairs. Legs short with very fine acute hairs, numerous at tibial apices; first tarsal joints each with 2 long and 3 short hairs; second joint of hind tarsus 0.09 mm. long. Siphunculi 0.06 mm. long, cylindrical, flangeless, with a slight basal constriction and 5-6 rows of transversely elongated reticulations over most of their length. Cauda 0.09 mm. long with pronounced median constriction and subcircular apical knob, with 5 lateral and 3 ventral hairs. Eighth tergite with 6 long acute hairs and 1 median bifurcated one.

Aphis salviae Walker = ***Aphis salviae*** Walker

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1043: *Aphis salviae*.

1947 Hille Ris Lambers, D., *Mitt. schweiz. ent. Ges.*, 20, 323: *Aphis salviae*.

* Both of these were originally labelled *salicina*, but were altered by Walker to *salicivora*, the name he finally decided upon.

- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 83: *Pergandeida (Doralida) salviae*.
 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 302: *Aphis salviae*.

Originally described as follows:

'*Nigra, sat gracilis; antennae validae, corpore paullo breviores; cornicula corporis quinta parte vix breviores; tibiae pallidae subpilosae; alae hyalinae.*

The viviparous winged female. Black, rather slender: feelers rather stout, a little shorter than the body; fourth joint much shorter than the third; fifth a little shorter than the fourth; sixth a little shorter than the fifth; seventh a little longer than the sixth: nectaries about one-fifth of the length of the body: legs rather long: shanks pale, somewhat hairy: wings colourless; distance between the first and second veins much more than twice farther at the tips than at the base; third vein almost twice farther from the second at the tip than at the base, much farther from the second at the base than the second is from the first; first fork very much nearer to the second fork than to the third vein, a little nearer to the third vein than the third is to the second; second fork a little nearer to the first fork than to the fourth vein; fourth vein curved, straight near the tip, much nearer to the second fork than to the tip of the rib-vein. From *Salvia pratensis*. Length of the body 1 line; of the wings 3 lines.

a. Switzerland. Presented by F. Walker, Esq.'

The single dry specimen indicated is not now in the Collection, and, according to a note in the margin of the Catalogue, was not there in 1874. What is presumed to be Walker's species has been recorded from Switzerland (Hille Ris Lambers, 1947), Central Europe (Börner, 1952), and Israel (Bodenheimer and Swirski, 1957). It has not been recorded in Britain.

Aphis secunda Walker = ? **Phorodon humuli** (Schrank)

- 1849 *Zoologist*, 7, app. xlv.
 1852 *List Homopt. Ins. Brit. Mus.*, 4, 1021.

Recorded from *Salix caprea*, without locality or date, and described as follows:

'*The winged viviparous female.* The body is black, shining, and of moderate size: the antennae are very much longer than the body: the rostrum is yellow, with a black tip: the tubcs are as long as one-fourth of the body: the legs are yellow and rather long; the four hinder thighs excepting the base, the tips of the fore-thighs, the tarsi and the tips of the tibiae, are black: the wings are colourless and very much longer than the body; the wing-ribs and the rib-veins are yellow; the brands are pale brown; the veins are brown.'

The Catalogue indicates no specimens and none named *secunda* have been found. A single alate viviparous female of *Phorodon humuli*, mounted from the Dry Collection and with the label 'Willow' in Walker's hand but no other data, may be the type of *secunda* (B.M. 905a). Another alate *P. humuli* occurs on a Walker slide amongst a number of specimens of *Cavariella aegopodii* (Scopoli) and *C. theobaldi* (Gillette and Bragg) from willow at Southgate on 9th June, 1847 (H.D. 340).

Aphis sejuncta Walker = **Macrosiphoniella (Phalangomyzus) sejuncta** (Walker)

- 1848 Walker, F., *Zoologist*, 6, 2247: *Aphis sejuncta*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1014: *Aphis sejuncta*.
 1915 Theobald, F. V., *Ent. Rec.*, 27, 55: *Macrosiphum formicarium*.
 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 118: *Macrosiphum formicarium*; 363: *Macrosiphum sejunctum*.
 1938 Hille Ris Lambers, D., *Temminckia*, 3, 32: *Macrosiphoniella sejuncta*.

- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 62: *Macrosiphoniella sejuncta*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 166: *Paczoskia sejuncta*.

Recorded from *Larix cedrus* (now *Cedrus libanensis*), near London in early June, and described as follows:

'*The wingless viviparous female*. The body is greenish yellow, mottled with bright red, rather large, oval, plump, smooth, shining: the antennae are black, dull red at the base, and a little longer than the body: the eyes are bright red: the mouth is pale red; its tip is black: the tubes are black, yellow at the base, and as long as one-fourth of the body: the legs are yellow, long and hairy; the tarsi, and the tips of the thighs and of the tibiae, are black.'

The Catalogue indicates one dry specimen. This, with the label 'Cedar of Lebanon' in Walker's hand, was mounted from the Dry Collection by Laing and is clearly the holotype of *sejuncta*. Its true host is *Achillea millefolium*, and the association of Walker's specimen with *Cedrus* is a mystery.

Börner (1952) was mistaken in placing *sejuncta* in the genus *Paczoskia* Mordvilko, 1914. Hille Ris Lambers has pointed out (1954, *Bull. Res. Council Israel*, 4, 276) that *Paczoskia* is characterized by the presence of five hairs on the first tarsal joints and a very long ultimate rostral joint. These characters are not present in *sejuncta*, which properly belongs in *Macrosiphoniella*, subgenus *Phalangomyzus* Börner, 1939.

HOLOTYPE. Apterous viviparous female. 'A. *sejuncta* Walk. Cedar of Lebanon.' From Dry Collection.

B.M. 908. Plate VI, L.

Colour: head pale, darker round the bases of the antennae; first and second antennal joints pale brown, base of third joint almost colourless, remainder of third and all of fourth dark brown, fifth and base of sixth slightly less dark, processus terminalis becoming gradually paler to its almost colourless tip. Apical joint of rostrum brown, remainder pale. Legs pale except apices of femora and tibiae, and all of the tarsi which are dark brown. Abdomen colourless, the sclerites only very slightly darker. Siphunculi light brown with pale bases. Cauda pale. *Morphology*: body length: 3.24 mm. Head smooth, lateral frontal prominences well developed, cephalic hairs 0.08–0.10 mm. long, with blunt or slightly expanded apices. Length of whole antenna: 3.55 mm.; III: 0.96, IV: 0.79, V: 0.57, VI: 0.17 + 0.71 mm.; third joints with 15 and 14 small round secondary rhinaria on the basal half; basal diameter of third joint: 0.04 mm.; antennal hairs 0.04–0.05 mm. Ultimate rostral joint 0.16 mm. long, narrow, conical, with 7 secondary hairs. First tarsal joints with 3, 3, 3 hairs; second joint of hind tarsus 0.15 mm. long. Dorsal abdominal hairs fine, blunt, 0.10–0.12 mm., each arising from a small sclerite; eighth tergite with 5 hairs. Siphunculi very long (0.80 mm.), broad at the base, tapering to the narrowest diameter at about five-eighths of their length from the base, then expanding again towards the apex; flange absent; reticulated for more than half their length (c. 0.45 mm.). Cauda conical with rounded apex, unconstricted, with 10 hairs, 0.38 mm. long.

Aphis similis Walker = ? ***Brachycaudus helichrysi*** (Kaltenbach)

- 1848 *Zoologist*, 6, 2249.
 1852 *List Homopt. Ins. Brit. Mus.*, 4, 1016.

Recorded from *Prunus domestica*, locality not stated, and described as follows:

'*The wingless viviparous female*. The body is grass-green, with a darker green line down the back, elliptical, convex, not shining: the antennae are pale green, brown towards the tips, 9—(190)

and nearly one-fourth of the length of the body: the rostrum is pale green; its tip and the eyes are brown: the tubes are also pale green, with brown tips, and about one-twentieth of the length of the body: the legs are short and pale green; the tarsi are brown.

Towards the end of April.'

The Catalogue indicates no specimens and none identifiable with *similis* have come to light.

The description and host record suggest a fundatrigenia of *Brachycaudus helichrysi* (Kaltenbach).

Pemphigus? *sinensis* Walker = ***Schlechtendalia chinensis*** (Bell)

- 1851 Bell, J., *Pharm. J.*, **10**, 128: *Aphis chinensis*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 1058: *Pemphigus ? sinensis*.
- 1883 Lichtenstein, J., *Stettin. ent. Ztg.*, **44**, 230: *Schlechtendalia chinensis*.
- 1917 Baker, A. C., *Ent. News*, **28**, 385-392: *Melaphis chinensis*.
- 1917 Matsumura, S., *A Collection of Essays for Mr. Yasushi Nawa*, p. 62: *Schlechtendalia miyabei ?*
- 1931 Takahashi, R., *Rep. Dep. Agric., Formosa*, **53**, 103: *Melaphis chinensis*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 647: *Schlechtendalia chinensis*.
- 1941 Shinji, O., *General Study of Japanese Aphids*, p. 204: *Melaphis chinensis*.
- 1946 Tsai, P. H., and Tang, C., *Trans. R. ent. Soc. Lond.*, **97**, 405: *Melaphis chinensis*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 322: *Schlechtendalia chinensis*.

Walker's original description is as follows:

'The insect forming the Chinese galls, *Doubleday, Pharm. Journ.*, vii, 310.

"Chest and abdomen becoming gradually wider to the tip of the abdomen, which is rounded at the outer angle, and emarginate in the middle of the hind margin: feelers five-jointed, short, rather stout, about half as long as the body; first and second joints short and stout; second longer than the first; third much longer, equal to both first and second combined; fourth rather longer than the second, broadest at the tip; fifth about equal in length to the third and fourth combined, subfusiform, contracted a little before the tip: labrum short, pointed: mouth short, dilated before the tip: legs short; feet apparently two-pointed, furnished with two claws."

a. China.'

Walker's description is taken from the article in the *Pharmaceutical Journal* (Vol. 7, p. 310) in which Doubleday described insects taken from 'Chinese galls'. In the Dry Collection over the name *sinensis* there is a dried gall labelled 'China' which is presumably the single specimen indicated by Walker. In addition there were two Walker slides labelled by him 'China' and 'See Pharmaceutical Journal. China.' respectively and containing what are doubtless aphids taken from this gall. The specimens from the second slide have been removed, relaxed, and remounted, and are found to be all larvae. Those on the other slide are very poorly preserved but appear to be larvae also. One of the remounted larvae has been marked lectotype (B.M. 925).

In his article, Doubleday stated that his description of insects removed from galls was prepared with the assistance of Walker and Haliday. He believed the insects to be aphids but did not name them. The galls were given him by Thomas Morson, who also presented several to the Trustees of the British Museum in 1847. These still exist and may have formed part of the original material from which Doubleday and Walker obtained their specimens.

In Volume 10 of the *Pharmaceutical Journal* (p. 127) there is an unsigned article, presumably by the editor, Jacob Bell, which summarizes the contemporary information on 'Chinese galls'. Doubleday's article is mentioned, and a name, *Aphis chinensis*, for the gall-forming aphid is proposed for the first time. This antedates *sinensis* Walker by a year and must therefore take priority.

Lichtenstein (1883) gave a historical account of 'Chinese galls' and cited Bell as the first to name the aphid causing them. He erected the genus *Schlechtendalia* with *chinensis* Bell as type.

Baker (1917) gave a somewhat fuller historical survey of the same subject, with a good bibliography (though omitting Walker), and concluded that the correct name for the aphid is *Melaphis chinensis* (Bell).

Börner and Heinze (1957) state that *Schlechtendalia* differs from *Melaphis* in having alatae with five-jointed instead of six-jointed antennae.

Aphis socia Walker = ***Brachycaudus helichrysi*** (Kaltenbach)

1848 *Zoologist*, 6, 2217.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1010.

Originally recorded from *Cynoglossum officinale* and described as follows:

'The winged viviparous female. The body is black and very small: the antennae are a little longer than the body: the tubes are about one-sixth of the length of the body: the tibiae are dark yellow, with black tips: the wings are slightly tinged with gray; the squamulae are yellow; the stigmata and the veins are brown.'

The Catalogue adds details of wing venation and indicates one dry specimen. No specimen named *socia* has been found in the Collections.

This is one of the species of the *Cynoglossum* Group (see p. 52). By comparing the specimens placed over the name *cynoglossi* in the Dry Collection with Walker's descriptions of species associated with that plant it appears that *socia* refers to an alate male of *Brachycaudus helichrysi* (Kaltenbach). The correlation in this instance is not exact—the siphunculi of the specimen are less than one-sixth of the body length (unless the body was very shrunken when Walker examined it)—but the venation details in the Catalogue agree closely with this specimen, which is therefore regarded as the type of *socia* (B.M. 284).

Aphis sodalis Walker = ***Acyrtosiphon malvae*** (Mosley)

1848 *Zoologist*, 6, 2218.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1011.

Originally recorded from *Cynoglossum officinale* near Fleetwood, Lancashire, in October, and described as follows:

'The wingless viviparous female. The body is dull yellow, brown towards the tip of the abdomen, and of moderate size: the antennae are black, yellow towards the base, and longer than the body: the rostrum is yellow, its tip and the eyes are black: the tubes are yellow, with black tips, and as long as one-fourth of the body: the legs are long and pale yellow; the knees, the tarsi and the tips of the tibiae are black.'

The winged viviparous female. While a pupa it is small, elliptical and pale red; the feelers are pale yellow: in other respects it resembles the wingless female.'

The Catalogue indicates four specimens, but adds no further details. No specimens named *sodalis* have come to light.

This is another species of the Cynoglossum Group (see p. 52). Comparison of specimens named *cynoglossi* with descriptions of Walker's *Cynoglossum* species leads to the conclusion that *sodalis* is based on an apterous male of *Acyrtosiphon malvae* (Mosley) (the 'wingless viviparous female' of the description), and three nymphs of *Myzus persicae* (Sulzer) (the 'pupa' of the description). The male of *malvae* is regarded as type of *sodalis* (B.M. 285).

Aphis submaeula Walker = **Maculolachnus submacula** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), **2**, 104: *Aphis submacula*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 958: *Aphis submacula*.
- 1858 Walker, F., *List Homopt. Ins. Brit. Mus.*, Supplement, p. 297: *Lachnus submacula*.
- 1885 Liechtenstein, J., *Les Pucerons. Monographie des Aphidiens*, pp. 64, 113: *Lachnus maculatus*.
- 1899 Cholodkovsky, N., *Zool. Anz.*, **22**, 471: *Lachnus rosae*.
- 1900 Guercio, G. del, *Nuove Relaz. Staz. Ent. agr., Firenze* (1), **2**, 109: *Lachnus subterraneus*.
- 1906 Sehouteden, H., *Mém. Soc. ent. Belg.*, **12**, 203: *Lachnus incertus*.
- 1912 Goot, P. van der, *Tijdschr. Ent.*, **55**, 279: *Lachnus rosarum*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 408: *Lachnus rosae*.
- 1917 Patch, E. M., *J. econ. Ent.*, **10**, 418: *Lachnus rosae*.
- 1920 Gaumont, L., *Bull. Soc. ent. Fr.* (1920), 26-31: *Maculolachnus rosae*.
- 1922 Oestlund, O. W., *Rept. Minn. Ent.*, **19**, 120: *Pterochlorus rosae*.
- 1923 Wilson, H. F., *Bull. Connecticut State geol. nat. Hist. Surv.*, **34**, 258: *Nippolachnus rosae*.
- 1925 Laing, F., *Entomologist*, **58**, 19: *Pterochlorus rosae*.
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **3**, 114: *Pterochlorus rosae*.
- 1929 Knowlton, G. F., *Pan-Pacific Ent.*, **6**, 33: *Pterochlorus rosae*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., **5**, 572: *Lachnus rosae*.
- 1945 Kloet, G. S., and Hineks, W. D., *A Check List of British Insects*, p. 72: *Cinara rosae*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 45: *Maculolachnus submacula*.
- 1952 Palmer, M. A., *Aphids of the Rocky Mountain Region*, p. 54: *Lachnus rosae*.
- 1954 Pašek, V., *Vošky Našich Lesných Drevin* (Homoptera-Aphidoidea), pp. 19, 49: *Maculolachnus rosae*.
- 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 248: *Maculolachnus rosae*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 60: *Maculolachnus submacula*.

Originally described, without host record or date, as follows:

'The viviparous winged female. The body and the limbs are black and hairy: the feelers are filiform, and rather more than half the length of the body; the fourth joint is much less than half the length of the third; the fifth is much longer than the fourth; the sixth is a little shorter than the fifth; the seventh is extremely short; the front is convex: the nectaries hardly rise above the surface of the abdomen: the legs are long and stout; the base of the fore-thighs is brown; the shanks and the first joints of the feelers are very slightly curved: the wings are brown, and of moderate size; the rib-vein is black, and gradually widens into the brand which is long and nearly spindle-shaped, but rather broader at its tip than where it begins; the

hind-border near the tip is curved, and does not form an angle; the branch-veins are tawny; the fourth vein is curved and clouded at its base but afterwards straight; the third is obsolete at its source, and forked just before one-third and again a little after two-thirds of its length; the forks are more diverging from each other than in most species of this group; the first and the second veins are nearly straight, and approach each other at their origin, but are far apart at their tips; in each upper wing there is a large brown spot proceeding from the beginning of the brand into the disc of the wing, and ending at the first fork of the third vein.

Length of the body $1\frac{1}{2}$ line; of the wings 4 lines.

Found in the Isle of Portland by Mr. Dale.'

The Catalogue adds venation details and the localities 'England and Switzerland'. A single alate viviparous female in the Dry Collection, with the label 'Interlaken' has been mounted and is doubtless the Swiss specimen, but Dale's has not been found. The alate female is excellently preserved and becomes the holotype of *submacula*.

HOLOTYPE. Alate viviparous female, 'Lachnus submacula Walker. Interlaken', from Dry Collection.

B.M. 946. Plate VI, K.

Colour: head and thorax dark brown, antennae uniformly medium brown, rostrum brown; legs, except pale femoral bases, uniformly brown, slightly darker than the antennae; abdominal sclerites at hair bases, stigmal plates, anal and subgenital plates, siphunculi and cauda pale brown; remainder of abdomen colourless. *Morphology:* body length: 3.43 mm.; head broad, frons slightly convex, median suture very pronounced, extending forwards and encircling the median ocellus; cephalic hairs 0.10–0.12 mm. long, fine, very numerous over the whole head; length of whole antenna: 1.60 mm.; third joint 0.58 mm. with 10 round or oval, slightly tuberculate secondary rhinaria, very variable in size, confined to the apical two-thirds of the joint; fourth 0.20 mm. with 2 rhinaria near the apex; fifth 0.28 mm. with only the single very large primary rhinarium close to the apex; sixth 0.23 + 0.07 mm., primary rhinarium large, nearly circular, 0.05 mm. in diameter, without thickened chitinous rim, accessories small, in 2 groups of 3 before and behind the primary; processus terminalis finger-shaped with 3 apical sensillae and 4 subapicals: antennal hairs fine, numerous, 0.07–0.08 mm. long. Rostrum in this specimen lying obliquely, probably reaching third coxae at least; apical joint rather broad, bluntly conical, 0.20 mm. long, with 23 secondary hairs. Fore wing with a diffuse dark spot lying between the base of the pterostigma and the junction of the first branch of the media; media twice-branched; radial sector straight towards the tip, strongly curved at the base around which there is slight darkening of the wing membrane. Legs stout, thickly covered with fine hairs; first tarsal joints with dorsal margin about half the length of the ventral margin; second tarsal joints rather long, expanding slightly towards the apex, that of the hind tarsus 0.38 mm. long. Abdomen broadly oval, dorsum and venter densely covered with fine hairs 0.10–0.12 mm. long, nearly all of which arise from small individual sclerites: siphunculi in the form of broad, shallow cones, about 0.30 mm. in basal diameter with numerous fine hairs arranged in 7–8 whorls. Stigmata rather large, subcircular, with an opercular flap attached to the anterior margin; stigmal plates large and irregular in shape. Cauda very short and broad, scarcely projecting beyond the anal plate, with numerous hairs of varying length.

***Coloradoa (Lidaja) submissa* (Walker MS) sp. n.**

Two Walker slides, one in the B.M. Collection and the other in the Hope Department (no. 175), contained nine specimens of a hitherto undescribed species of *Coloradoa*, closely allied to *heinzei*

Börner, 1952. Börner placed *heinzei* in his genus *Lidaja* (type *Hyalopterus abrotani* Koch), which is here regarded as a subgenus of *Colorado* Wilson, 1910. Walker's slide labels give only 'submissa. Sea Wormwood. September. Sandwich.' without the year, but a clue to the date of collection is provided by his slide of *Aphis reducta* (p. 115), the label of which records that this also was taken on Sea Wormwood at Sandwich, and gives the date as September, 1848. No other specimens were recorded by Walker from this locality and it seems more than probable that *submissa* and *reducta* were taken at the same time. No mention occurs in Walker's published works of any aphid named *submissa*, which appears to be a manuscript name only. The species had not been found again since Walker's time until the present writer went in search of it and found it on *Artemisia maritima* growing by the Thames estuary near High Halstow in north Kent on 2nd September, 1953.

All Walker's specimens are excellently preserved, and those on the B.M. slide have been removed, relaxed, and remounted individually on slides 947-950.

HOLOTYPE. Apterous viviparous female. Leg. F. Walker. *Artemisia maritima*. Kent, Sandwich; September, 1848.

B.M. 947. Plate VII, M.

Body small, broadly oval; head smooth, frons rather narrow, convex, without lateral prominences, vertex extended laterally behind the antennal bases, compound eyes without protruding triommatidia, integument of vertex gradually becoming darker towards the posterior border. Clypeus large, subspherical, dark sclerotic. Cephalic hairs fine, slightly curved, with flattened, slightly expanded apices, 0.03-0.04 mm. long. First antennal joint about as broad as long, nearly twice as broad and rather darker than the second, third almost colourless with dusky apex, fourth pale with dusky apex, fifth with basal half pale and apical half dark, sixth with a dark area around the primary rhinarium, the proximal part of the base and all of the processus terminalis slightly paler; the first and second joints nearly smooth, the remainder lightly imbricated; antennal hairs sparse, acute, short (0.0079 mm.); basal diameter of third joint: 0.021 mm. Rostrum just reaching third coxae, apical joint narrow, lancet-like, with in all 10 short hairs (only 4 of the 6 primary hairs occupy the normal position just behind the tip of the joint, the ventral pair being displaced to a point near its centre, as in most species of *Colorado*). Legs short, tibiae slender; femora, especially of the fore legs, very stout; coxae and femora rather dark, except hind femora which are pale at base and apex; tibiae pale with dusky apices, tarsi dark. Apices of hairs on femora and outer margins of tibiae acute, blunt, or at most scarcely expanded, about half the length of the abdominal hairs. First tarsal joints very short, with 3, 3, and 2 hairs. Pronotum with a broad irregular dark band extending over its whole width, on each side a small hemispherical marginal papilla, 5 large hairs like those on the vertex, together with a few short acute hairs. Meso- and metanota and abdominal dorsum unornamented except for prominent groups of dark muscle plates, small elongate-oval stigmal sclerites, and dusky sclerotic transverse bands on abdominal tergites VII and VIII. Dorsal abdominal hairs all slender with flattened expanded apices, their smallest diameter just below the apex, 0.040-0.050 mm. long, arranged for the most part in 2 transverse rows per segment, each with 2 spinal, 2 pleural, and 2 marginal hairs; seventh tergite with 7 hairs, eighth also with 7. A marginal papilla near the base of each siphunculus, midway between the fifth and sixth stigmata; a pair of smaller marginal papillae on the fourth segment, and a single one on the right margin of the third. Stigmata small, reniform. Siphunculi short (0.10 mm.), rather thick, slightly swollen in the middle, dark, with 14-16 rows of irregularly spinulose imbrications over the whole surface, flange small. Cauda 0.16 mm. long, bluntly conical, scarcely constricted, sclerotic but less dark than siphunculi, with 4 lateral and 1 preapical hairs.

Measurements (in millimetres) of holotype and paratypes.

	Body	Ant.	III	IV	V	VI	Ult. r. jt.	Siph.	Cau.	H.t.2
Holotype B.M. 947	1.41	0.95	0.205	0.125	0.130	0.135 + 0.245	0.09	0.10	0.16	0.10
948	1.43	0.91	0.200	0.120	0.125	0.120 + 0.230	0.10	0.10	0.15	0.10
949	1.42	0.91	0.205	0.125	0.120	0.130 + 0.230	0.10	0.10	0.16	0.10
950	1.49	0.96	0.220	0.130	0.130	0.120 + 0.240	0.10	0.09	0.16	0.09
H.D. 175										
1	1.42	0.97	0.230	0.140	0.150	0.130 + 0.260	0.10	0.10	0.16	0.10
2	1.45	0.94	0.200	0.130	0.120	0.130 + 0.240	0.10	0.10	0.16	0.09
3	1.46	0.96	0.210	0.130	0.130	0.130 + 0.240	0.11	0.10	0.15	0.10
4	1.58	0.91	0.200	0.130	0.130	0.130 + 0.220	0.10	0.09	0.15	0.09
5	1.24	0.89	0.190	0.120	0.130	0.120 + 0.230	0.09	0.10	0.14	0.09

Lidaja submissa can be separated from *L. heinzei* Börner by the following characters:*L. submissa*

Abdominal hairs 0.04–0.05 mm. with slender stems and fan-shaped apices, the smallest diameter just behind the apex.

Femoral and outer tibial hairs acute, blunt, or at most with scarcely expanded apices, about half length of abdominal hairs.

Proc. term. \pm twice base of VI.

Ultimate rostral joint more or less equal to hind tarsus II.

Siphunculi more or less equal to ultimate rostral joint.

Cauda $\pm 1\frac{1}{2}$ times ult. rostral joint, bluntly conical.

L. heinzei

Abdominal hairs 0.025–0.035 mm. tapering evenly from apex to base, the smallest diameter at the base.

Hairs on middle and hind femora and outer tibial margins with expanded apices, equal in length to abdominal hairs.

Proc. term. $\pm 1\frac{1}{2}$ times base of VI.

Ult. rostral joint $\pm 1\frac{1}{4}$ times hind tarsus II.

Siphunculi about two-thirds as long as ult. rostral joint.

Cauda about equal to ult. rostral joint, wide at base with broadly rounded apex.

Aphis subterranea Walker = **Anuraphis subterranea** (Walker)

- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1033: *Aphis subterranea*.
 1854 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 50: *Aphis heraclei*.
 1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 38: *Aphis subterranea*.
 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 277: *Anuraphis subterranea*.
 1931 Hille Ris Lambers, D., *Mem. Mus. Stor. nat. Venez. trident.*, 1, 4: *Anuraphis subterranea*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 591: *Anuraphis subterranea*.
 1934 Hille Ris Lambers, D., *Stylops*, 3, 30: *Anuraphis subterranea*.
 1945 Kloet, G. S., and Hincks, W. D. *A Check List of British Insects*, p. 69: *Anuraphis subterranea*.
 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 99: *Anuraphis subterranea*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 146: *Anuraphis subterranea*.

Originally described, without host plant, locality, or date, as follows:

'Viridis vel rufa; antennis apice thoracis disco femoribus tibiisque apice tarsisque obscuris; alis limpidis.'

A. Ranunculi var. ?

Dull green or pale red, stout, convex, somewhat oval: front almost straight: feelers stout, hardly half the length of the body; fourth joint about half the length of the third; fifth a little shorter than the fourth; sixth shorter than the fifth; seventh slender, almost as long as the fourth, fifth, and sixth: nectaries about one-twentieth of the length of the body: legs short.

The viviparous winged female. More slender than the wingless insect, almost elliptical: feelers more than half the length of the body: disk of the chest dark: nectaries about one-fifteenth of the length of the body: the legs moderately long; feet and tips of the thighs and of the shanks brownish: wings colourless; distance between the first and second veins more than twice farther at the tips than at the base; third a little nearer to the second at the base than at the tip, a little nearer to the second at the base than the second is to the first; first fork a little nearer to the second fork than to the third vein, a little nearer to the third vein than the third is to the second; second fork as near to the fourth vein as to the first fork; fourth curved near the base, almost straight towards the tip, very much nearer to the second fork than to the tip of the rib-vein. In July, on the roots of the parsnip, occasionally at the depth of one foot beneath the surface, whereto it crawls when the wings are about to be developed. Length of the body 1 line; of the wings $2\frac{3}{4}$ lines.

a-r. England. (In Canada Balsam.) From Mr. Walker's collection.'

Of the eighteen balsam mounts indicated, fourteen are still extant: B.M. 951-954, 956-960; H.D. 15, 165, 282, 303; N.M.I. 83. All contain apterous and alate viviparous females of *Anuraphis subterranea* collected from the roots of *Pastinaca* in Southgate on various dates in June and July, 1847.

LECTOTYPE. Alate viviparous female. 'Subterranea. Roots of Parsnip. Southgate. July 3—[18]47.' B.M. 951.

Colour: head and thorax dark brown; antennae dark brown with paler processus terminalis; apex of rostrum brown: wings hyaline, veins pale yellow-brown; legs brown, bases of femora pale, apices of femora and tibiae dark brown, as are the tarsi: sclerotic parts of the abdomen, and the siphunculi dark brown; cauda rather paler. *Morphology:* body length: 2.79 mm. Head strongly sclerotic, the cuticle finely granular, sparsely furnished with minute spinules, cephalic hairs acute, ± 0.01 mm. long; ocelli well developed; a pair of large papillae lying close together just ventral to the median ocellus; a second pair, some distance apart, near the hind margin of the vertex. Length of whole antenna: 1.93 mm. First and second joints heavily imbricated, especially on ventral surface; third joint 0.61 mm. long, rather thick, imbricated, with about 110 rather small round or oval secondary rhinaria; fourth joint 0.30 mm. long with 38 rhinaria, fifth 0.19 mm. with a rather small primary rhinarium and no secondaries, sixth $0.13 + 0.56$ mm.; antennal hairs very short (± 0.01 mm.), sparse, acute. Rostrum long, reaching to near the middle of the abdomen, apical joint long (0.31 mm.), slender, tapering gradually to just behind the insertions of the primary hairs where there is a slight expansion; apparently 6 very short, acute secondary hairs, not more than 0.01 mm. long. Wings normal, aphidine. Legs rather long and slender, with mostly short, fine hairs, those near the apices of the tibiae slightly longer and stouter; first tarsal joints with 3, 3, 3 hairs; length of second joint of hind-tarsus: 0.18 mm. Abdominal ornamentation as follows: a large dark dorsal patch extending from the fourth tergite to the hind-margin of the sixth, reaching laterally to the margins of the fifth and sixth tergites, and surrounding but not touching the bases of the siphunculi; a few broken bands and irregular spots on the anterior tergites and a solid transverse band across the whole of each of the seventh and eighth;

a pair of large marginal papillae on segments I–VII, those on II, III, and IV each set in the centre of a large more or less circular sclerite; pairs of smaller spino-pleural papillae also occur on these segments, the pair on the sixth being closer together than the others. These papillae, which scarcely project above the surface, all occur within sclerites, and appear as pale circular or oval openings, each enclosing a darker granular area within it. Areas of minute spinulosity occur on the large marginal sclerites, behind the base of each siphunculus and along the posterior border of the sixth tergite, and on most of the seventh and eighth tergites. Siphunculi short and thick, densely covered with annular rows of minute spinules, tapering towards the apex and with strongly developed flange; length: 0.22 mm. Cauda short (0.12 mm.), broadly U-shaped, with 10 hairs.

Aphis suffragans Walker: *nomen dubium*

1848 *Zoologist*, 6, 2221.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1014.

Recorded, together with several other species, from *Lycopsis arvensis*, near Fleetwood, Lancashire, in autumn, and described as follows:

'The winged viviparous female. The body is dull green and larger than that of the preceding species [*adscita*]: the disk of the thorax and that of the abdomen are sometimes almost black above: the antennae are black and a little longer than the body: the mouth is yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and nearly one-fourth of the length of the body: the legs are yellow; the tips of the thighs are brown; the tarsi and the tips of the tibiae are black: the wings are colourless; the squamulae and the costal veins are yellow; the stigmata and the other veins are brown.'

The Catalogue adds details of wing venation and indicates two specimens. The Dry Collection contained two specimens over the name *suffragans*, an alate viviparous female and an alate male of *Brachycaudus helichrysi* (Kaltenbach), now mounted in balsam by Laing, who stated (1925, p. 123) that they 'seem to be undoubtedly *A. rumicis* L.' But his opinion is oddly at variance with his labels on the two mounts, where the specimens are correctly identified as *helichrysi*. Theobald (1917, p. 77) believed *suffragans* to be the alate female of *lycopsidis* Walker, but in his Monograph (1927, p. 98) he followed Laing (*loc. cit.*) and put *suffragans* as a synonym of *rumicis* (i.e. *fabae* Scopoli).

An examination of all the specimens believed to have been taken on *Lycopsis* (see *Lycopsis* Group, p. 98) shows that these two specimens of *helichrysi* agree much better with Walker's description of *adscita* than with that of *suffragans*, while an alate viviparous female of *Metopolophium festucae* (Theobald), originally over the name *consueta* (q.v.), agrees both with the original description and with the supplementary notes given in the Catalogue for *suffragans*, but not with the description of *consueta*. But although it may be tempting to suppose that this specimen is Walker's type of *suffragans*, there are strong reasons for resisting this conclusion, which at best can be no more than conjectural. There is no label or other similar indication which might be used as proof that Walker described this specimen as *suffragans*. Moreover, the description, though it applies to this specimen, could equally apply to one of another species, or of another genus; perhaps, as Börner supposed (1952, p. 126), to *Myzus persicae*, an aptera of which Walker described (as *Aphis dianthi*) among his aphids from *Lycopsis*. The description of the alate *derelicta* (p. 55), which is believed to be *persicae*, closely corresponds to that of *suffragans*, as do some of Walker's descriptions of what he himself believed to be *persicae* (c.g. 1848, *Zool.*, 6, 2246: '*Aphis Dianthi*').

But apart from these considerations, the most cogent reason for rejecting the identification of *suffragans* with *festucae* is that to do so would necessitate a change of name for a well-known

aphid of economic importance. To suppress *festucae*, an appropriate name which has been in common use since its erection by Theobald in 1917, in favour of *suffragans*, unknown and virtually meaningless, would be directly contrary to the spirit of the Law of Continuity, as well as unjustifiable on the basis of any existing evidence.

The evidence in favour of *suffragans* being *persicae* is scarcely more convincing than that in support of its being *festucae*, except that *Lycopsis* could be used as a host by *persicae*. In the writer's opinion the lack of material evidence and the ambiguity of the description leave no option but to regard *suffragans* as a *nomen dubium*.

Aphis superabilis Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1039.

'Obscure *flavescens*, *convexa*, *sat lata*, *subelliptica*; *antennae corpore plus minusve breviores*; *thoracis discus in alatis niger*; *pedes pallidi*, *femoribus tibiisque apice tarsisque fuscis*; *alae limpidae*.

The viviparous wingless female. Dingy yellow, convex, rather broad, almost elliptical: front slightly convex: feelers about half the length of the body; fourth joint much shorter than the third; fifth shorter than the fourth; sixth shorter than the fourth; seventh about twice the length of the sixth: nectaries a little more than one-twentieth of the length of the body: legs of moderate length.

The viviparous winged female. Feelers almost as long as the body; seventh joint about thrice the length of the sixth: disk of the chest black: legs pale; feet and tips of the thighs and of the shanks brownish: wings colourless; distance between the first and second veins almost twice farther at the tips than at the base; third much nearer to the second at the base than at the tip, as near to the second as the second is to the first; first fork nearer to the third vein than to the second fork, much nearer to the third vein than the third is to the second; second fork generally a little nearer to the fourth vein than to the first fork; fourth vein much curved, a little farther from the tip of the rib-vein than from the second fork.

a-c. England. (In Canada Balsam.) From Mr. Walker's collection.'

No specimens or balsam mounts named *superabilis*, or identifiable with it, have come to light. In view of the absence from the description of characters on which a firm determination can be based, and of information regarding host plant, locality, or date, *superabilis* must be regarded as a *nomen dubium*.

Aphis tanacetina Walker = **Coloradoa tanacetina** (Walker)

1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 6, 46: *Aphis tanacetina*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 994: *Aphis tanacetina*.

1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 63: *Aphis tanacetina*.

1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 228: *Aphis ?tanacetina*.

1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 283: *Anuraphis tanacetina*.

1939 Hille Ris Lambers, D., *Zool. Meded.*, 22, 112: *Coloradoa tanacetina*.

1945 Klotz, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 69: *Anuraphis tanacetina*.

1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 117: *Coloradoa tanacetina*.

1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 174: *Coloradoa tanacetina*.

Originally recorded on *Tanacetum vulgare*, and described as follows:

'*The viviparous wingless female*. The body is elliptical, convex, yellowish green: the front is slightly convex, not notched: the feelers are setaceous, and rather less than half the length of the body; the first and the second joints have no angles; the fourth joint is much shorter

than the third, but more than half its length; the fifth is a little shorter than the fourth, and the sixth has the same proportion to the fifth; the seventh is nearly as long as the third; the tips of the joints are brown: the tip of the abdomen is not compressed, but rounded, and has no tube: the nectaries are linear, and as long as one-sixth of the body: the legs are rather short; the feet are brown. The young ones which it contains exceed twelve in number.

The viviparous winged female. It resembles the wingless insect, but is darker about the head and about the chest: the feelers are brown excepting the base, and a little shorter than the body: the tips of the nectaries are brown: the wings are colourless and very much longer than the body; the brand has a distinct angle where it sends forth the fourth vein, and the distance thence to its tip is about one-fifth of its whole length, and less than half the space between the tip of the brand and the tip of the fourth vein: the fourth vein is moderately curved at the base, and nearly straight towards the tip; the third springs from the brand at one-fifth of the length of the latter, and is forked before one-third and again a little after two-thirds of its length; the second and the third veins are nearer to each other at the base than are the third and the fourth; the first and the second are still nearer to each other than are the second and the third, but they diverge more before they reach the hind-border. Found in August on *Tanacetum vulgare*.

Length of the body $\frac{2}{3}$ line; of the wings $1\frac{1}{2}$ line.

Variations in the wing-veins. 1st var. The third vein has its first fork long after one-third and its second a little after two-thirds of its length.

2nd var. The third vein sends forth its first fork at half its length, and it has no lower branch to its second fork.

The oviparous wingless female. This much resembles the viviparous wingless female, but the hind-shanks are somewhat wide, and rather darker than the rest. It appears in the middle of October.

The Catalogue adds venation details and indicates eight balsam mounts. Nine Walker mounts exist (B.M. 970-972: H.D. 107, 108, 372, 373; N.M.I. 33, 34), all containing *Coloradoa tanacetina* (Walker) collected between July and September, 1847, in Southgate.

LECTOTYPE. Alate viviparous female. 'Tanacetina. Tansy. Southgate. Aug. 21—[18]47.'

B.M. 970.

Colour: head and thorax brown; antennal joints I, II and base of III pale, remainder brown; wings with veins faintly bordered with brown; legs light brown, bases of femora pale, apices of tibiae and tarsi dark brown; abdomen colourless with slightly darkened marginal sclerites; siphunculi and cauda light grey-brown, the former becoming very slightly darker towards the apices. *Morphology:* body length: 1.56 mm.; head smooth, frons slightly convex without lateral prominences, cephalic hairs fine, acute, ± 0.015 mm. long. Length of whole antenna: 1.03 mm.; III: 0.25, IV: 0.16, V: 0.15, VI: 0.12+0.20 mm., third joint with 12 and 15 round, rather prominent secondary rhinaria irregularly arranged over most of its length, its basal diameter 0.018 mm.; fourth joint with 6 and 7 secondaries, fifth with 4 and 4; all joints except first and second distinctly imbricated, antennal hairs very short (0.008 mm.), sparse, acute. Rostrum short, not reaching second coxae, ultimate joint slender, conical, 0.08 mm. long, with 4 secondary hairs. Legs rather short, fore and middle femora short and thick, tibial hairs stout, spiny, ± 0.025 mm. long, first tarsal joints with 3, 3, 2 hairs, second joint of hind tarsus 0.10 mm. long. Abdomen with 3 pairs of rather indistinct marginal sclerites, dorsal hairs short (± 0.01 mm.), blunt, sparse. Siphunculi 0.19 mm. long with pronounced constriction at the base, more or less cylindrical nearly to the apex where there is a slight constriction just behind the flange; closely-set transverse imbrications occur near the base, becoming dispersed and irregular towards the apex. Cauda 0.09 mm. with broad base narrowing to the centre, apical half finger-shaped with 5 hairs.

Aphis tentans Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1045.

Originally described as follows:

'*Fulva, ovata, convexa; antennae corporis dimidio non longiores; cornicula brevissima; pedes breves.*

Tawny, oval, convex: front narrow, slightly convex: feelers about half the length of the body; fourth joint a little shorter than the third; fifth much shorter than the fourth; sixth shorter than the fifth; seventh as long as the fifth and sixth: nectaries about one-twentieth of the length of the body: legs short. From *Mentha hirsuta*. Length of the body $\frac{1}{2}$ line.

England.'

No specimens are indicated and none named *tentans* or identifiable with it have been found.

Börner (1952, p. 103) suggested that *tentans* Walker may be the aphid described from the roots of *Mentha sylvestris* by Nevsky (1929) as *Dentatus microsiphon*, but without more definite evidence to confirm this, it is preferred to regard the name as a *nomen dubium*.

Aphis tenuior Walker = ? *Cinara laricis* (Walker)

1849 *Zoologist*, 7, app. xlix.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1025.

Originally recorded from *Larix communis* (now *L. decidua* Mill.) without locality or date, and described as follows:

'*The winged viviparous female.* This species approaches *Aphis Pinicola, Laricis*, &c. The body is yellow, narrow and linear: the head and the lobes of the thorax are brown: the prothorax is pale red, and has a short pale brown band: the breast is black: the antennae are black, rather thick towards the base, and much shorter than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow, and as long as one-eighth of the body: the legs are yellow; the tarsi and the tips of the tibiae are black: the wings are colourless: the squamulae are pale yellow; the brands and the veins are brown.'

The Catalogue indicates no specimens and none named *tenuior* have been found in the Collections. It is possible, however, that Walker was here describing the male of *laricis*. The specimens which Walker mounted and described as *laricis* comprise a mixture of species, all of which he believed to be morphs or varieties of *laricis* and described as such (see p. 93); but no males occur among these specimens, nor was this morph described. It is possible that four males of *laricis*, which were present in the Dry Collection over that name, could have formed the basis of his description of the 'winged viviparous female' of *tenuior*. (Type on slide B.M. 491.)

Aphis tertia Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Originally recorded from *Urtica dioica* near Lancaster in late October, and described as follows:

'*The wingless viviparous female.* The body is dark yellowish green, nearly linear, and of moderate size: the head is nearly black: the abdomen has a slight white bloom beneath: the antennae are black and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tip of the abdomen is yellow: the tubes are black and about one-fifth of the

length of the body: the legs are pale yellow and moderately long; the tarsi, and the tips of the thighs and of the shanks, are black.

The winged viviparous female. The body is black: the sutures of the abdominal segments are dark green: the antennae are a little longer than the body: the rostrum is yellow, with a black tip: the legs are black; the thighs at the base, and the shanks except their tips, are yellow: the wings are colourless and much longer than the body; the wing-ribs and the rib-veins are yellow; the brands are pale brown; the other veins are brown.'

No specimens are indicated in the Catalogue and none named *tertia* have been found in the Collections.

Walker's description of a moderate-sized, elongate, dark aphid is not applicable to any species normally associated with *Urtica*, and is certainly not in accordance with Börner's supposition (1952, p. 78) that *tertia* is *urticata* Fabricius, a species with which Walker was perfectly familiar, as is shown by a number of specimens in the Walker Collections, all of which were correctly identified by him.

Aphis tetrarhoda Walker = **Chaetosiphon (Pentatrachopus) tetrarhodus** (Walker)

- 1849 Walker, F., *Ann. Mag. nat. Hist.* (2), 4, 42: *Aphis tetrarhoda*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 978: *Aphis tetrarhoda*.
- 1855 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 180: *Siphonophora rosarum*.
- 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 150: *Siphonophora rosarum*.
- 1887 Oestlund, O. W., *Minn. bot. Stud.*, 4, 73: *Myzus rosarum* partim.
- 1900 Guercio, G. del, *Nuove Relaz. Staz. Ent. agr., Firenze* (1), 2, 149, 152: *Myzus rosarum*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 128: *Capitophorus tetrarhodus*.
- 1915 Theobald, F. V., *Bull. ent. Res.*, 6, 112: *Myzus neorosarum*; 129: *Myzus tetrarhodus*.
- 1922 Blanchard, E. E., *Physis, B. Aires*, 5, 209: *Myzus tetrarhoda*.
- 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 241: *Capitophorus tetrarhodus*; 248: *Capitophorus neorosarum*.
- 1930 Börner, C., *Arch. klass. phylog. Ent.*, 1, 140: *Pentatrachopus tetrarhodus*.
- 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 629: *Pentatrachopus tetrarhodus*.
- 1940 Thomas, I., and Jacob, F. H., *Ann. appl. Biol.*, 27, 234: *Pentatrachopus tetrarhodus*.
- 1941 Thomas, I., and Jacob, F. H., *Proc. R. ent. Soc. Lond.* (B), 10, 107: *Pentatrachopus tetrarhodus*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 65: *Pentatrachopus tetrarhodus*.
- 1948 Hille Ris Lambers, D., *Trans. R. ent. Soc. Lond.*, 99, 7, 285: *Pentatrachopus tetrarhodus*.
- 1950 Börner, C., *Neue europäische Blattlausarten*, Selbstverlag, p. 11: *Pentatrachopus tetrarhodus*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 119: *Passerinia tetrarhoda*.
- 1953 Cottier, W., *N.Z. Dept. Sci. Indust. Res.*, Bull. 106, 135: *Pentatrachopus tetrarhodus*.
- 1953 Hille Ris Lambers, D., *Temminckia*, 9, 78: *Chaetosiphon (Pentatrachopus) tetrarhodus*.
- 1957 Bodenheimer, F. S., and Swirski, E., *Aphidoidea of the Middle East*, p. 275: *Pentatrachopus tetrarhodus*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 176: *Passerinia tetrarhoda*.

Originally described as follows:

'*The viviparous wingless female.* This species feeds on the rose, and when full-grown is deep green, oval, very convex and plump, and covered beneath with a white bloom; it is bristly

and has six rows of tubercles on the back, and the middle rows are very distinct: the front is hardly notched: the feelers are nearly half the length of the body: the eyes are dark red: the nectaries have brown tips, and are about one-eighth of the length of the body: the legs are dark green, and rather long; the feet and the tips of the shanks are brown. When young it is pale grass-green, slightly convex, and has a rim on each side, but its tubercles are indistinct: the feelers are about half the length of the body.

1st var. The body is red.

2nd var. The body is lilac.

3rd var. The body is blackish.

The viviparous winged female. Unfolds its wings in the middle of May: it is black and rather stout: the abdomen is dark green with a row of black spots on each side: the feelers are rather thick, and a little shorter than the body: the first and the second joints are slightly angular on the inner side of their tips; the fourth joint is but little more than half the length of the third; the fifth is a little shorter than the fourth; the sixth is about half the length of the fifth; the seventh is as long as the fifth: the tip of the mouth and the nectaries are black, and the latter are as long as one-fourth of the body: the legs are long; the thighs are yellow towards the base: the wings are colourless, and nearly twice the length of the body; the wing-ribs and the rib-veins are pale yellow; the wing-brands and the veins are brown; the second vein diverges much more from the first than it does from the third vein; the forks of the latter usually have their respective sources at one-third and at two-thirds of the length; the fourth vein is much curved near its beginning, but nearly straight in the latter part of its course; the angle whence it springs is slight.

Length of the body $\frac{3}{4}$ line; of the wings $2\frac{1}{2}$ lines.'

The Catalogue adds venation details and indicates twelve balsam mounts. Seven Walker slides exist, all containing *Pentatrachopus tetrarhodus* collected from rose, Southgate, in May and June, 1847. (B.M. 973-978; H.D. 1.)

LECTOTYPE. Apterous viviparous female. 'tetrarhoda. Rose. Southgate. May 24—[18]47.'

B.M. 975.

Colour: the macerated specimen shows no pigmentation. *Morphology:* Body length: 2.63 mm. Head smooth, frons with slight lateral prominences; cephalic hairs stout with strongly developed basal tubercles and expanded globular apices, 0.05-0.06 mm. long. Length of whole antenna 1.73 mm.; III: 0.58, IV: 0.30, V: 0.23, VI: 0.11 + 0.31 mm. Antennal hairs of two kinds: the first, mostly confined to the anterior margin, stout, capitate, arising from conical bases, 0.010-0.035 mm. long; the remainder shorter (0.010-0.015 mm.) with blunt or scarcely expanded apices, arising from normal bases. Basal diameter of third joint: 0.030 mm. Rostrum reaching beyond second coxae; ultimate joint bluntly conical, 0.14 mm. long, 0.06 mm. wide at the base, with 14 secondary hairs. Legs with fairly numerous hairs of varying length, most of which are acute or blunt, with a few capitate ones mostly on the dorsal margins. First tarsal joints with 5 hairs; length of second joint of hind tarsus: 0.120 mm. Abdominal dorsum sclerotic, the cuticle patterned with a network of raised wrinkles enclosing irregularly shaped depressions, especially along the mid-dorsal line. Abdominal hairs stout, capitate, up to 0.06 mm. long, the spinal ones paired, arising from large rounded or conical protuberances, pleural hairs single, marginals single or paired, both pleurals and marginals arising from small tubercles; eighth tergite with 5 capitate hairs. Siphunculi 0.41 mm. long, rather broad at the base, tapering gradually to the apex, faintly imbricated, flange small but distinct. Cauda 0.23 mm. long, bluntly conical, with slight constriction at about the middle and 7 rather fine acute hairs.

Aphis tinctoria Walker = ? **Macrosiphum** sp.*

1849 *Zoologist*, 7, app. li.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1026.

Originally recorded from '*Epilobium*' in July, and described as follows:

'The wingless viviparous female. The body is very narrow, and increases in breadth from the head to the tip of the abdomen; it is pale green, darker along the middle and on each side: the limbs are pale yellow; the antennae have black tips, and are as long as the body: the eyes, the tip of the mouth, and the tips of the tubes are black, and the latter are as long as one-fifth of the body: the legs are moderately long; the thighs are pale green; the tarsi and the tips of the tibiae are black.'

The Catalogue indicates no specimens and none named *tinctoria* have been found. The identity of *tinctoria* is discussed on p. 65.

Aphis transiens Walker = **Aphis nasturtii** Kaltenbach

1849 *Zoologist*, 7, app. xlv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1022.

Originally recorded from *Polygonum persicaria* in July, and described as follows:

'The wingless viviparous female. The body is small, short, plump, dull, velvet-like, yellowish green: the antennae are pale yellow, darker towards the tips, and much shorter than the body: the tubes are short: the legs are green and rather short; the tarsi are darker.'

In the beginning of July.'

The Catalogue indicates no specimens and none named *transiens* have been found. A Walker slide with the manuscript name '*ovina*', however, contains specimens of *Aphis nasturtii* from *Polygonum persicaria* at Southgate on 16 July, 1847. These are certainly distinct from the aphids from *Epilobium* which he called *ovina*, and as they agree with his very brief description they are regarded as his types of *transiens*. The slide, which is in the Hope Collection (H.D. 379), contains three apterous viviparous females, some nymphs, and larvae. One well-preserved aptera has been marked lectotype of *transiens*.

Aphis translata Walker = **Aphis fabae** Scopoli

1849 *Zoologist*, 7, app. xxxv.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1018.

Originally recorded from *Ononis spinosa*, without locality or date, and described as follows:

'The wingless viviparous female. The body is oval, convex, shining, rather broad, somewhat dark green, mottled with black: the head is dull yellow: the abdomen is reddish towards its tip: the antennae are black, pale yellow towards the base, and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow with black tips, and rather more than one-eighth of the length of the body: the legs are yellow; the knees, the tarsi and the tips of the tibiae are black.'

* Walker (1848c, p. 423) included *Epilobium montanum* as a host of *Aphis rubi*. A slide of his labelled "*rubi. Epilobium.*" (B.M. 861) contains nymphs and an alate female of a *Macrosiphum* which agrees with his description of *tinctoria*. The alata cannot be his type, however, since only the aptera is described.

The Catalogue indicates no specimens and none named *translata* have been found. The type of *translata*, however, is believed to be an apterous viviparous female of *Aphis fabae* which was present in the Dry Collection with other specimens under the name *incubens*, and since mounted on slide B.M. 434. (See *incubens*, p. 84.)

Aphis transmutata Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxvii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1019.

Originally recorded from *Prunus spinosa* in mid-September and described as follows:

'The winged viviparous female. The body is black, and as large as that of the variety of the preceding species [*bellula*]: the antennae are black and longer than the body: the rostrum is yellow with a black tip: the tubes are black and as long as one-sixth of the body: the thighs at the base, and the tibiae excepting their tips, are yellow: the wings are colourless and much longer than the body; the squamulae and the costal veins are pale yellow; the stigmata are dull yellow; the other veins are brown.'

No specimens named *transmutata* have been found in the Collections. Walker collected several aphid species from sloe, among them *Phorodon humuli* (Schrank) and *Rhopalosiphum nymphaeae* (L.), the alatae of either of which would agree with his description quoted above. It seems probable that *transmutata* is one of these species, both of which normally feed on sloe. Nevertheless there is a possibility that Walker based this species on three alatae of *Dysaphis* (*Pomaphis*) *plantaginea* (Passerini) found in the Dry Collection over the name *pruni* and with the label 'Sloe' in Walker's hand, although sloe is not a host of *plantaginea*. But as no conclusive evidence exists to prove the identity of *transmutata*, and as it would be highly undesirable in any case to incur yet another change of name for the Rosy Apple aphid, the name *transmutata* is regarded as a *nomen dubium*.

Aphis transposita Walker: *nomen dubium*

1849 *Zoologist*, 7, app. xxxvii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1020.

Originally recorded from *Prunus domestica* in May, and described as follows:

'The winged viviparous female. The body is grass-green and rather small: the disks of the head, of the chest, and of the breast are brown: the abdomen has a row of black spots on each side: the antennae and the eyes are black, and the former are nearly as long as the body: the rostrum is pale green with a dark tip, and does not reach the middle coxae: the tubes are green and nearly one-fifth of the length of the body: the legs are long and pale green; the tarsi, and the tips of the thighs and of the tibiae, are brown: the wings are colourless; the squamulae are pale green; the stigmata are very pale brown; the veins are brown.

Found at the end of May.'

No specimens are indicated in the Catalogue and none identifiable with *transposita* have been found in the Collections. The description probably applies to a vagrant.

Aphis tribulis Walker = **Megourella tribulis** (Walker)

1849 Walker, F., *Zoologist*, 7, app. xxxiv: *Aphis tribulis*.

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1018: *Aphis tribulis*.

1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 175: *Megoura tribulis*.

1928 Laing, F., *Entomologist*, 61, 208: *Amphorophora tribulis*.

- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 327: *Amphorophora tribulis*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 64: *Amphorophora tribulis*.
 1949 Hille Ris Lambers, D., *Temminckia*, 8, 272: *Megourella tribulis*.
 1950 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 101, 96: *Megourella tribulis*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 177: *Megoura (Megourella) tribulis*.

Originally recorded from *Vicia sepium* in the autumn, and described as follows:

'*The wingless viviparous female*. The body is black, oval, convex, and of moderate size: the antennae are black and a little longer than the body; the third joint is pale yellow at the base: the abdomen has a rim on each side and two rows of tubercles on the back: the tubes are as long as one-fifth of the body: the tip of the abdominal tube is yellow: the legs are long. The young ones are linear, with pale and half-pellucid limbs.'

The Catalogue indicates no specimens. In the Dry Collection over the name *Aphis tribulis* were an adult apterous viviparous female and a larva with the label '*Vicia sepium*'. These were mounted in balsam by Laing and redescribed by Theobald (1929). The adult aptera is regarded as Walker's type.

HOLOTYPE. Apterous viviparous female (incomplete). '*Aphis tribulis. Vicia sepium.*' From Dry Collection.

B.M. 998. Plate VIII, N.

Colour: head brown, darker on frons and at bases of antennae; first and second antennal joints dark brown, third, fourth, and fifth joints becoming progressively paler (sixth joint missing), base of third joint slightly paler than the rest; legs yellow-brown, the coxae and trochanters, apices of femora and tibiae, and the tarsi darker brown; abdomen pale with brown sclerites, siphunculi dark brown, cauda pale. *Morphology*: body length: 2.71 mm.; head smooth, except for a few scattered spinules on the ventral surface, with large diverging lateral frontal prominences, cephalic hairs 0.06–0.07 mm. long, curved, with blunt or slightly expanded apices. Antennae incomplete: joints III–VI missing from the right, the processus terminalis from the left. First and second joints with some spinules mostly on the ventral surface and a few hairs like those on the head; third joint 0.90 mm. long, basal diameter 0.044 mm., with a few faint imbrications near the base and 22 small round secondary rhinaria in a line along nearly the whole posterior margin; hairs 0.03–0.04 mm. long; fourth and fifth joints faintly imbricated, without secondary rhinaria, 0.63 and 0.47 mm. long respectively. Rostrum reaching nearly to third coxae, ultimate joint 0.12 mm. long, conical, with 4 secondary hairs. Legs with fairly numerous hairs, the shorter ones (± 0.03 mm.) acute, the longer ones (± 0.06 mm.) blunt or with slightly bulbous tips; first tarsal joints with 3 hairs, second joint of hind tarsus 0.12 mm. long. Tergum faintly reticulated, hairs ± 0.05 mm. long, arising from well-developed, slightly dome-shaped sclerites, the spinal and marginal sclerites tending to coalesce in pairs; ante- and post-siphuncular sclerites present, and broad transverse sclerotic bands on seventh and eighth tergites, the latter with 5 hairs. Siphunculi 0.48 mm. long, rather coarsely imbricate except at the base which is expanded, thence narrowing, the distal three-quarters slightly but distinctly swollen, with one or two irregular striations behind the flange. Cauda 0.32 mm. long, elongate-triangular, with 6 hairs.

Aphis triphaga Walker = ***Aphis epilobii*** Kaltenbach

- 1852 *List Homopt. Ins. Brit. Mus.*, 4, 1041.

Originally recorded from *Epilobium*, England, and described as follows:

'*Nigra, fusiformis, viridis, aut nigro-viridis, albo pollinosa; antennae basi flavae, corporis dimidio vix breviores; cornicula alba, apice nigra, corporis decima non longiores; pedes flavi, tibiis apice genibus tarsisque nigris.*

10—(190)

The viviparous wingless female. Small, spindle-shaped, very variable in colour, being either black, dark olive-green, or dull red, always covered with white bloom: feelers black, pale yellow towards the base, hardly half the length of the body: mouth pale yellow, with a black tip: nectaries white, hardly one-tenth of the length of the body; tips black: legs pale yellow, moderately long; knees, feet, and tips of shanks black. On *Epilobium*.

England.'

The Catalogue indicates no specimens, and none identifiable with *triphaga* have been found in the Collections.

From the description it seems probable that *triphaga* is *epilobii* Kaltenbach. The description certainly applies better to this species than does the description of *praeterita* Walker, the name which Börner claimed (1952, p. 79) should replace *epilobii* Kaltenbach. This, together with other Walkerian species recorded from *Epilobium*, are discussed on p. 63.

Aphis trirhoda Walker = **Longicaudus trirhodus** (Walker)

- 1848 Walker, F., *Ann. Mag. nat. Hist.* (2), **1**, 372: *Aphis trirhoda*.
- 1849 Walker, F., *Ann. Mag. nat. Hist.* (2), **4**, 45: *Aphis trirhoda*.
- 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, **4**, 979: *Aphis trirhoda*.
- 1854 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 19: *Hyalopterus aquilegiae*.
- 1863 Passerini, G., *Arch. zool. anat. fis.*, **2**, 149: *Hyalopterus trirhoda*.
- 1879 Buckton, G. B., *Monograph of the British Aphides*, **2**, 113: *Hyalopterus dilineatus* partim; 114: *Hyalopterus trirhoda*.
- 1883 Macchiati, L., *Bull. Soc. ent. ital.*, **15**, 237: *Hyalopterus trirhoda*.
- 1900 Guercio, G. del, *Nuove Relaz. Staz. Ent. agr.*, Firenze (1), **2**, 147: *Hyalopterus trirhoda*.
- 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, **18**, 230: *Hyalopterus flavus*.
- 1913 Goot, P. van der, *Tijdschr. Ent.*, **56**, 105: *Longicaudus trirhodus*.
- 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 272: *Semiaphis trirhodus*.
- 1918 Essig, E. O., and Kuwana, S. I., *Proc. Calif. Acad. Sci.*, **8**, 78: *Aphis thalictri*.
- 1918 Matsumura, S., *Trans. Sapporo nat. Hist. Soc.*, **8**, 7: *Yezosiphum thalictri*.
- 1924 Takahashi, R., *Rep. Dep. Agric., Formosa*, **10**(3), 107: *Pergandeida thalictri*.
- 1925 Davidson, J., *A List of British Aphides*, p. 86: *Pergandeida trirhoda*.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, **2**, 35: *Longicaudus trirhodus*; 38: *Longicaudus dilineatus*.
- 1930 Börner, C., *Arch. klass. phylog. Ent.*, **1**, 135: *Longicaudus trirhodus*.
- 1930 Takahashi, R., *Trans. nat. Hist. Soc. Formosa*, **20**, 274: *Pergandeida trirhodus*.
- 1941 Shinji, O., *General Study of Japanese Aphids*, p. 651: *Pergandeida trirhodus*.
- 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 66: *Longicaudus trirhodus*.
- 1952 Börner, C., *Mitt. thüring. bot. Ges.*, Beiheft 3, 118: *Longicaudus trirhodus*.
- 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., **5**, 175: *Longicaudus trirhodus*.

Originally described (1849) as follows:

'This species, which has a very quiet disposition, abounds on the rose in the spring, and having acquired wings in May, it emigrates thence to the columbine, where it feeds equally on the upper surface and on the under surface of the leaf, which often becomes red or purple from its injuries. It continues on that plant till the end of October.

The viviparous wingless female. It is elliptic, slightly convex, not shining, whitish green, covered with a white bloom, and remarkable for the peculiar softness and velvety appearance

of its skin: the front is straight: the feelers are white, and about half the length of the body; the first and the second joints are not angular; the fourth is less than half the length of the third; the fifth is shorter than the fourth; the sixth is much shorter than the fifth; the seventh equals the fifth in length: the eyes are dark brown: the mouth is white with a brown tip, and hardly reaches the middle hips: the tip of the abdomen and the nectaries are white, and the latter are one-twentieth of the length of the body: the legs also are white.

1st var. Pale yellowish green.

2nd var. ? or a distinct species. The body is elliptical, convex, dull, grass-green, with a very slight white bloom: the feelers are brownish green, and about one-fifth of the length of the body: the eyes are black: the mouth is dull green with a black tip, and does not reach more than half-way between the fore and the middle legs: the nectaries do not rise above the surface of the body: the legs are dark brownish green, and rather short.

The viviparous winged female. This unfolds its wings at the end of May: it is pale greenish yellow: the head and the discs of the fore-chest, of the middle-chest, and of the middle-breast are black: there is a large black spot on each side of the middle-chest: some short confluent black bands form a large irregular spot on the disc of the abdomen, on each side of which there is a row of black dots: the feelers are black, and a little shorter than the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are pale yellow, and one-twentieth of the length of the body; the third joint [of the feelers] is rather stout; the fourth is very slender, and less than half the length of the third; the fifth is a little shorter than the fourth and the sixth than the fifth; the seventh is much shorter than the sixth: the legs are also pale yellow; the feet and the tips of the thighs and of the shanks are black: the wings are colourless, and much longer than the body; the wing-ribs are pale yellow; the brands and the veins are brown, and the tips of the latter are slightly clouded; the second vein diverges much more from the first than it does from the third; the first fork of the latter begins a little before one-third, and the second a little after two-thirds of its length; the fourth vein is moderately curved, and the angle whence it springs is very slight. The pupa is pale yellow, and the wings when just unfolded are milk-white as usual.

1st var. The body, the mouth, and the nectaries are green: the wing-ribs are pale green; the brands are pale brown.

2nd var. The head, the discs of the fore-chest, of the middle-chest, and of the middle-breast are brown, and so also are the spots on the middle-chest.

3rd var. The body is dark green.

4th var. The abdomen is without black dots.

5th var. The feelers are much shorter than the body.

6th var. Some of the latter joints of the feelers are pale with black tips.

7th var. The nectaries are one-twelfth of the length of the body.

8th var. The head, the discs of the fore-chest, of the breast, of the middle-chest, and a large spot on each side of the latter are brown: there are some short black confluent bands that form a large irregular spot on the disc of the abdomen, on each side of which there is usually a row of very small black dots.

9th var. Dark green: the head, the disc of the chest and that of the breast are black: the mouth, the nectaries, the wing-ribs and the wing-brands are green.

The winged male. It appears in the autumn and is much smaller than the winged female: the third joint of the feelers is rather stout; the fourth is slender, and less than half the length of the third; the fifth is a little shorter than the fourth, and the sixth than the fifth; the seventh is much shorter than the sixth.

Length of the body $\frac{3}{4}$ –1 line; of the wings $2\frac{1}{2}$ –3 lines.'

The Catalogue adds venation details and indicates seven balsam mounts. The Collections contain thirteen: B.M. 302, 999–1006; H.D. 48, 321; N.M.I. 95, 96. All contain apterous and

alate viviparous females of *Longicaudus trirhodus* taken from *Rosa* and *Aquilegia* at Southgate and Berwick on various dates in May, June, and September, 1847. No males occur among them, although the male is described.

LECTOTYPE. Alate viviparous female. 'trirhoda. Columbine. Southgate. June 12—[18]47.'

B.M. 1006.

Colour: head and thorax rather dark brown; antennae evenly brown, slightly paler than head; legs pale yellowish brown, apices of femora and tibiae and the tarsi slightly darker; abdomen with more or less square dark dorsal patch on segments 3–5, dark transverse bands on 6 and 7, and dark marginal sclerites; siphunculi and cauda pale; subgenital plate dark. *Morphology*: body length: 2.39 mm.; head rather narrow, smooth, frons flat in profile, ocelli prominent, compound eyes large, cephalic hairs sparse, blunt, short (0.012–0.015 mm.). Length of whole antenna: 1.91 mm., third joint 0.91 mm. long, basal diameter 0.030 mm., with 94–96 strongly tuberculate secondary rhinaria distributed over the whole length of the lateral and ventral surfaces (i.e. when antenna is extended forwards); dorsal surface coarsely imbricated; fourth and fifth joints each 0.24 mm. long, coarsely imbricated, without secondary rhinaria; base of sixth joint 0.16 mm. long, processus terminalis 0.19 mm.; antennal hairs sparse, similar to cephalic hairs. Rostrum short, not reaching second coxae; apical joint 0.095 mm. long, 0.077 mm. broad at base, bluntly triangular, with 8(?)* secondary hairs. Legs rather long and slender, femoral hairs short, acute, sparse; tibial hairs longer, up to 0.04 mm., more numerous, especially at the apices; first tarsal joints with 6 hairs (2 sensillae and 4 longer, acute hairs); second joint of hind tarsus 0.16 mm. long. Abdomen with transverse dark sclerotic bands on tergites III–VII, those on III–V more or less fused into a solid square patch with an irregularly broken margin; rather small, round, marginal sclerites occur on tergites II–IV, each with 1 short hair and with or without a small central papilla; crescentic sclerites occur before and behind the siphunculi. Abdominal hairs short (0.01 mm.), blunt, sparse. Stigmata oval, stigmal plates conspicuous. Siphunculi 0.120 mm. long, conical, truncate, faintly spinulose-imbricate, with numerous transverse striations at the base and a few at the apex, flange small. Cauda 0.28 mm. long, broad at the base, basal third tapering, apical two-thirds more or less cylindrical, apex rounded, with 15 hairs.

Schizoneura turbida Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1051.

Originally described as follows:

'*Nigra; alae cinereae, stigmatibus fusco sat lato subfusiformi.*

Black, rather slender: wings gray; brand brown, rather broad, irregularly spindle-shaped, acutely angular at each end; distance between the first and second veins at the base not more than one-eighth of that between them at the tips; third vein nearer to the second towards the base than at the tips, not half so far at the tips from the second as the second is from the first; fork hardly nearer to the third vein than to the fourth, hardly nearer to the third than the third is to the second; fourth vein long, straight, slightly curved towards the base, much nearer to the fork than to the tip of the rib-vein.

Length of the body 1 line; of the wings 3 lines.

England.'

No specimens are indicated and none named *turbida* or identifiable with the description have come to light.

* Exact number not discernible. Other Walker specimens have 8–10 secondary hairs.

Aphis tussilaginis Walker = **Dactynotus tussilaginis** (Walker)

- 1850 Walker, F., *Ann. Mag. nat. Hist.* (2), 5, 390: *Aphis tussilaginis*.
 1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 990: *Aphis tussilaginis*.
 1855 Koch, C. L., *Die Pflanzenläuse Aphiden*, etc., p. 158: *Siphonophora tussilaginis*.
 1872 Ferrari, P. M., *Ann. Mus. Stor. nat. Genova*, 2, 52, 55: *Siphonophora tussilaginis*.
 1876 Buckton, G. B., *Monograph of the British Aphides*, 1, 159: *Siphonophora tussilaginis*.
 1900 Guercio, G. del, *Nuove Relaz. Staz. Ent. agr., Firenze* (1), 2, 168: *Siphonophora tussilaginis*.
 1906 Schouteden, H., *Mém. Soc. ent. Belg.*, 12, 240: *Macrosiphum tussilaginis*.
 1913 Theobald, F. V., *J. econ. Biol.*, 8, 120: *Macrosiphum tussilaginis*.
 1915 Goot, P. van der, *Beiträge zur Kenntnis der Holländischen Blattläuse*, p. 101: *Macrosiphum tussilaginis*.
 1926 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 1, 141: *Macrosiphum tussilaginis*.
 1928 Opmanis, K., *Acta Univ. latv.*, 18, 390, 408: *Macrosiphum tussilaginis*.
 1929 Mordvilko, A. K., *Works appl. Ent.*, 14, 84: *Megalosiphum tussilaginis*.
 1929 Nevsky, V. P., *Aphids of Central Asia*, p. 73: *Macrosiphum tussilaginis*.
 1930 Judenko, E., *Bull. ent. Pologne*, 9, 161: *Macrosiphum tussilaginis*.
 1932 Börner, C., and Schilder, F. A., in Sorauer, *Handb. PflKrankh.*, 4th Ed., 5, 630: *Dactynotus tussilaginis*.
 1939 Hille Ris Lambers, D., *Temminckia*, 4, 43: *Dactynotus tussilaginis*.
 1945 Kloet, G. S., and Hincks, W. D., *A Check List of British Insects*, p. 63: *Dactynotus tussilaginis*.
 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 169: *Dactynotus basalis*.
 1957 Börner, C., and Heinze, K., in Sorauer, *Handb. PflKrankh.*, 5th Ed., 5, 251: *Dactynotus basalis*.

Originally described as follows:

'*The viviparous wingless female*. This species was found in the latter part of October near Lancaster on *Tussilago Farfara*. The body is large, convex, narrow, linear and brown: the head is black: the feelers are pale yellow, and as long as the body; the tips of the joints are black: the mouth is pale yellow, and reaches the hind-hips; its tip and the eyes are black: the nectaries are pale yellow, black at the base and at the tips, and as long as one-fourth of the body: the legs are long and pale yellow; the knees, the feet, and the tips of the shanks are black. While young it is linear pale greenish yellow, and has a large lively green spot in the middle of the body.

1st var. The abdomen is yellowish brown: the feelers are black, pale brown towards the base, and nearly twice the length of the body: the nectaries are yellow with black tips; they are also black at the base, where there is a large spot of the same colour.

The viviparous winged female. The body is brown: the borders and the underside of the fore-chest are pale green: the abdomen is pale green with a row of narrow black bands along its back, and a row of black spots on each side: the feelers are black, and a little longer than the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are yellow with black tips, and as long as one-fourth of the body: the legs are long and yellow; the hind-thighs except the base, the feet, and the tips of the thighs and of the shanks are black: the wings are colourless; the wing-ribs and the rib-veins are pale yellow; the wing-brands and the other veins are brown.'

Although the winged and wingless viviparous forms and a 'variety' are described, the Catalogue indicates only one dry specimen. This, now mounted in balsam, is an ovipara of *Dactynotus tussilaginis*, and is probably what Walker described as the wingless viviparous female. It is regarded as the holotype.

Börner's use of the name *basalis* Walker (Börner, 1952) for *tussilaginis* is based on an erroneous interpretation of Walker's description of *basalis* (see p. 35).

HOLOTYPE. Oviparous female (incomplete). '*Aphis tussilaginis*. *Tussilago farfara*.' From Dry Collection.

B.M. 1008.

Colour: head and thorax yellow-brown; first antennal joint dark brown, second slightly paler, third pale yellowish, slightly darker at extreme apex, fourth pale yellowish gradually darkening towards the apex, fifth and sixth distinctly darker than third. Ultimate rostral joint brown, remainder pale. Legs uniformly pale yellow-brown except tibial apices and tarsi which are darker. Tergum almost colourless, sclerites and scleroites dark brown. Siphunculi dark brown at base and apex, remainder pale yellowish. Cauda very pale yellowish. Anal and subgenital plates brown. *Morphology*: body length 3.79 mm. Head smooth, lateral frontal prominences diverging; cephalic hairs acute or blunt, 0.07–0.08 mm. long. Antennae incomplete: joints III–VI missing on right, tip of processus terminalis on left. Third joint 1.08 mm. long, slightly scabrous at the base, remainder smooth, basal half slightly swollen with 12 small round secondary rhinaria more or less in a line along posterior margin, basal diameter 0.050 mm., antennal hairs 0.040–0.045 mm. long; fourth and fifth joints showing progressively more distinct imbrication, 0.90 and 0.79 mm. long respectively, base of sixth joint 0.18 mm. long. Ultimate rostral joint 0.20 mm. long, narrow, tapering very slightly to its rounded apex, with 8 secondary hairs. Legs long and slender, basal third of hind tibia swollen and bearing numerous small round pseudosensoria. First tarsal joints with 5 hairs; second joint of hind tarsus 0.18 mm. long. Abdominal hairs 0.07–0.08 mm. long, fine, acute, the majority arising singly from small round scleroites; eighth tergite with 6 hairs. Siphunculus 1.00 mm. long, base expanded, the remainder more or less cylindrical, faintly imbricated, apical one-seventh with about 16 rows of reticulations. Cauda 0.46 mm. long, more or less conical, unconstricted, with 21 hairs.

Aphis ulicis Walker = ***Aphis ulicis*** Walker

- 1870 Walker, F., *Zoologist* (2), 5, 1999: *Aphis ulicis*.
- 1879 Buckton, G. B., *Monograph of the British Aphides*, 2, 81: *Aphis rumicis* partim.
- 1925 Davidson, J., *A List of British Aphides*, p. 156: *Aphis rumicis* partim.
- 1927 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 2, 98: *Aphis rumicis* partim.
- 1929 Theobald, F. V., *The Plant Lice or Aphididae of Great Britain*, 3, 345: *Aphis rumicis* partim.
- 1940 Thomas, I., and Jacob, F. H., *Northw. Nat.*, 143: *Doralis medicaginis*.
- 1948 Jacob, F. H., *Proc. R. ent. Soc. Lond.* (B), 17, 57: *Aphis ulicis*.
- 1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 81: *Pergandeida ulicis*.
- 1955 Stroyan, H. L. G., *Trans. R. ent. Soc. Lond.*, 106, 318: *Aphis ulicis*.

In his 'Notes on Aphides' (1870, *loc. cit.*) Walker wrote: '*A. Genistae* (S.S. 1298).—I believe that this and *A. Laburni* are identical, though the latter is more shining, especially in the disk of the body. A much smaller *Aphis* that dwells on the furze may be termed *A. Ulicis*. It is sometimes like *A. Laburni* in colour, sometimes like *A. Rumicis*.' It seems that he was the first to recognize *ulicis* as a distinct species. Subsequent authors confused *ulicis* with *fabae* Scopoli and related species of 'black aphids', so that most records of *rumicis*, *medicaginis*, *laburni*, etc., on *Ulex* probably in fact refer to *ulicis*. Jacob (1948) gave the first detailed descriptions of the various morphs of *ulicis*, and indicated the characters by which it is distinguished from other 'black aphids', notably the slender ultimate rostral joint which is longer than the second joint of the hind tarsus.

No specimens named *ulicis* by Walker have come to light, but three balsam mounts labelled '*rumicis*' from *Ulex europaeus* (B.M. 879; H.D. 300, 376) contain *ulicis* as described by Jacob, and an apterous viviparous female has been selected from among them and described as lecto-type.

LECTOTYPE. Apterous viviparous female (remounted). '*Rumicis*. Furze. Burton, Trent. July 20—[18]47.'

B.M. 879. Plate VIII, O.

Colour: head dark brown; first and second antennal joints brown, third, fourth, and basal half of fifth pale, almost colourless, apical half of fifth and whole of sixth brown. Rostrum with the 2 apical joints brown, remainder pale. Notum largely dark brown sclerotic with lateral pale areas. Legs with coxae and trochanters dark brown, femora dark brown with pale bases, tibiae pale with dark apices, tarsi dark brown. Tergum with dark brown sclerotic ornamentation, stigmal plates and marginal papillae dark brown, siphunculi, cauda, anal and subgenital plates dark blackish-brown. *Morphology*: body length: 1.61 mm. Head without lateral frontal prominences, vertex with faint traces of reticular sculpturing, cephalic hairs fine, acute, up to 0.050 mm. Length of whole antenna 1.00 mm., third joint 0.220 mm., basal diameter 0.020, fourth joint 0.145, fifth 0.160, base of sixth 0.110, processus terminalis 0.250 mm.; antennal hairs sparse, acute, up to 0.015 mm.; all joints imbricated. Ultimate rostral joint elongate, slender, conical, 0.140 mm. long, with 2 secondary hairs. Prothorax with a pair of bluntly conical marginal tubercles. Legs rather short, tibiae with numerous hairs, first tarsal joints with 3 hairs, second joint of hind tarsus 0.110 mm. long. Tergum covered with a well-developed pattern of reticulations, many of the 'cells' of which are strongly pigmented and form a more or less solid irregular dark median patch, broken here and there by unpigmented 'cells' and surrounded by scattered isolated pigmented 'cells' or groups of 'cells'; marginal tubercles present on segments I and VII; ante- and post-siphuncular sclerites present; abdominal hairs sparse, acute, 0.025–0.035 mm. Siphunculi 0.23 mm. long, very slightly tapering to apex, heavily imbricated, flange small. Cauda 0.19 mm. long with median constriction and rounded apex, coarsely spinulose, especially on ventral surface, with 10 lateral hairs.

Aphis vacillans Walker = ? *Anuraphis farfarae* (Koch)

1849 *Zoologist*, 7, app. xlvii.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1023.

Originally recorded from *Tussilago farfara* and described as follows:

'*The wingless viviparous female*. The body is large, long, narrow, grass-green; the disk of the abdomen is pale yellowish green: the antennae are pale yellow, with brown tips, and as long as the body: the eyes are dark brown: the mouth is green, with a brown tip: the tubes are black and about one-twentieth of the length of the body: the legs are long and pale yellow; the tarsi and the tips of the tibiae are brown.

The winged viviparous female. While a pupa all the joints of the antennae have black tips: when the wings are unfolded the insect is green: the disk of the thorax is buff, streaked with brown above, black beneath: the antennae are black and as long as the body: the abdomen has short black bands on its disk, and a row of black spots on each side: the legs are black; the thighs are dull yellow: the wings are colourless, and very much longer than the body.'

The Catalogue indicates no specimens and none identifiable with *vacillans* have been found in the Collections. It is probable that Walker was describing *Anuraphis farfarae* (Koch), as Börner surmised (1952, p. 99), but his account as it stands is inadequate for certain diagnosis.

Aphis valida Walker: *nomen dubium*

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1033.

Originally described, without host plant or locality, as follows:

'*Nigra, robusta, hirta; antennae ferrugineae, pilosae, apice nigrae; scutellum ferrugineum; pedes ferruginei, pilosi, tibiis apice tarsisque nigris; alae subcinereae, venis fusco marginatis.*

Black, stout, hairy: feelers ferruginous, hairy, rather thick, a little shorter than the body; fourth joint hardly half the length of the third; fifth, sixth, and seventh black; fifth as long as the fourth; sixth a little more than half the length of the fifth; seventh as long as the sixth, but much more slender: scutcheon ferruginous: nectaries spindle-shaped, about one-sixth of the length of the body: legs stout, ferruginous, hairy; feet and tips of the shanks black: wings slightly gray; veins stout, black, clouded with brown; rib-vein brown, forming a very obtuse angle beneath the rib-vein, which is pale brown; distance between the first and second veins at the base about half that between them at the tips; third hardly nearer to the second at the tip than at the base, farther from the second at the base than the second is from the first; third vein and its forks slightly curved towards the fourth vein; first fork at the tip a little nearer to the second fork than to the third vein, a little farther from the third vein than the third is from the second; second fork very little nearer to the fourth vein than to the first fork; fourth vein curved near the base, straight towards the tip, nearer to the second fork than to the tip of the rib-vein. Length of the body 2 lines; of the wings 4 lines.

England.'

The Catalogue indicates no specimens and none named *valida* or identifiable with it have been found.

Aphis veratri Walker = ***Aphis veratri*** Walker

1852 Walker, F., *List Homopt. Ins. Brit. Mus.*, 4, 1041: *Aphis veratri*.

1885 Lichtenstein, J., *Les Pucerons. Monographie des Aphidiens*, pp. 126, 140: *Aphis veratri*.

1925 Davidson, J., *A List of British Aphides*, p. 90: *Aphis veratri*.

1950 Hille Ris Lambers, D., *Mitt. schweitz. ent. Ges.*, 23, 43: *Aphis veratri*.

1952 Börner, C., *Mitt. thuring. bot. Ges.*, Beiheft 3, 76: *Aphis (Doralis) veratri*.

Originally described as follows:

'*Nigra, ovata, convexa, obscura, cinereo pollinosa; antennae corporis dimidio vix breviores; cornicula corporis decima longitudine; pedes albi, femoribus tibiisque apice tarsisque nigris.*

The viviparous wingless female. Black, oval, convex, small, not shining, with a slight gray bloom: feelers nearly half the length of the body: nectaries about one-tenth of the length of the body: legs white; feet and tips of thighs and of shanks black. A Rumicis, var.? From *Veratrum album*. Length of the body $\frac{3}{4}$ line.

Switzerland.'

The Catalogue indicates no specimens, and none identifiable with *veratri* have been found in the Collections.

The species has recently been rediscovered in Switzerland by Stäger (*vide* Hille Ris Lambers, 1950). Börner (1952) recorded it also from the Vosges, Lorraine, Steiermark, and the Carpathians. It has not so far been recorded in Britain.

Aphis veronicae* Walker = *Myzus cerasi*** (Fabricius) s.l.

1848 *Zoologist*, 6, 2248.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 1015.

Originally recorded from *Veronica chamaedrys* and described as follows:

'*The wingless viviparous female*. The body is very small, oval, convex, smooth, shining, and of a very dark olive colour or almost black: there is a rim on each side of the body: the antennae are black, slender, setaceous, and more than half the length of the body: the eyes are dark brown: the rostrum is black: the tubes are also black and nearly one-fourth of the length of the body: the legs are dark green and of moderate length. The young ones are like their mothers, but more dull, flat, and linear; their colour, when very young, is dark green.

Near London, in the spring; it disappears soon after the beginning of summer.'

The Catalogue adds venation details and indicates six balsam mounts. The two original balsam mounts still extant, both in the Hope Department Collection, contain apterae and larvae of *Myzus cerasi* (F.) taken from *Veronica* sp. in May, 1847 (H.D. 173), and alatae and apterae of *Hyadaphis foeniculi* (Passerini) together with two apterous *Cavariella aegopodii* (Scopoli) labelled '*veronicae*' but with no host record and dated August 21 (H.D. 122). There is also a single aptera of *Microlophium evansi* (Theobald) mounted in balsam from the Dry Collection where it stood over the name *veronicae* Walker, but with no other data (B.M. 1048).

The apterous *cerasi* correspond with Walker's description, as does the date of collection, and as *Veronica* is known to be a secondary host of *cerasi*, there are good grounds for assuming that this was the species Walker described. One aptera on slide H.D. 173 has therefore been marked lectotype of *veronicae* Walker. The wing venation details added in the Catalogue appear to apply to the alate *H. foeniculi* which Walker had labelled *veronicae*. The occurrence of an apterous *M. evansi* over the name *veronicae* in the Dry Collection was doubtless due to some error in rearrangement.

Aphis vincae Walker = ***Aulacorthum solani*** (Kaltenbach)

1848 *Ann. Mag. nat. Hist.* (2), 2, 429.

1852 *List Homopt. Ins. Brit. Mus.*, 4, 968.

Recorded from *Vinca major* near London in May, and described as follows:

'The structure of this species very much resembles that of *A. Urticae*; it is rather smaller; the feelers, especially the seventh joint, are shorter; the tubercles at their base are less developed; the nectaries are also a little shorter. It is abundant on *Vinca major*, the greater periwinkle, in the month of May near London.

The viviparous wingless female. The body is pale green, oval, convex, smooth and shining: the feelers are very pale, longer than the body; the tips of the joints are brown; the fourth

* In a note published since this manuscript went to press, Ossiannilsson (1959 *LantbrHögs. Ann.* 25, 36) recognizes as a subspecies of *Myzus cerasi* (Fabricius) an aphid which he found monoecious on *Galium* and possibly also *Euphrasia* in Sweden, and for which he suggests the name *veronicae* Walker. Since Walker's types of *veronicae* are apterae taken from *Veronica* in May, a date too early for colonies to have been founded by migrants from cherry, Walker may indeed have had this subspecies before him when he described *veronicae*. *Aphis asperulae* Walker and *A. euphrasiae* Walker are also identifiable with *M. cerasi* sensu latiore, and are associated with hosts appropriate to the subspecies, but although Walker recorded finding apterae of the former in May, the only extant specimens named *asperulae* are alatae, and therefore possibly migrants of *cerasi* sensu stricto, while the date of collection of the single aptera of *euphrasiae* is unknown. The types of the two latter species, moreover, were originally in the Dry Collection, whereas those of *veronicae* were mounted and named by Walker himself.

joint is shorter than the third; the fifth is shorter than the fourth; the sixth is less than one-third of the length of the fifth; the seventh is longer than the third: the eyes are dark brown: the mouth is pale yellow with a brown tip: the nectaries are pale green with brown tips, and about one-fifth or one-sixth of the length of the body: the legs are pale yellow, long and slender; the knees, the feet, and the tips of the shanks are brown.

The viviparous winged female. This much resembles the preceding form, but presents the usual difference in structure, and in the darker colour of the head, of the chest, of the breast, and of the feelers.'

The Catalogue indicates two specimens. Two slides labelled *vincae* by Walker exist, together with three unnamed slides containing specimens from *Vinca* collected on the same dates as the first. All contain *Aulacorthum solani* (Kaltenbach) (B.M. 1062-1064; H.D. 212, 335). An alate viviparous female on a named slide ('*vincae*. *Vinca* major. Southgate. May 22—[18]47') has been marked lectotype of *vincae* Walker. (B.M. 1063.)

Börner (1952, p. 142) claimed that he had established biological differences between forms which Hille Ris Lambers and others had regarded hitherto as, at best, subspecies of *solani* Kaltenbach, and believed himself justified in raising them to specific rank. He applied the name *vincae* Walker* to one of these species, with *pallida* Walker as a synonym. This is not the place to examine Börner's arguments in detail and it must suffice here to say that his evidence in support of this contention is not convincing enough to persuade this writer to abandon the use of *Aulacorthum solani* in the sense in which it has for long been applied by many aphidologists.

Börner's assertion (1952, p. 142) that *solani* Kaltenbach, 1843, is preoccupied by *solani* Kittel, 1827, cannot be accepted because, as has already been stated, Kittel's names are not available (see p. 64).

* Dr. Hille Ris Lambers has informed me that Börner first used *vincae* to name a species he considered distinct from *solani* in an obscure paper which I have not been able to procure in this country. He gives the reference as: 1941, Zur Systematik Virusübertragender Blattläuse, *Landw. Jahrbücher*, 90, Heft 2, 288. J.P.D.

A List of Non-Walkerian Aphid Species in the Walker Collections

Walker's conception of the aphid species known to him is sometimes of value in identifying doubtful species of earlier authors. To some extent his interpretation of such species can be deduced from his published synonymies and host plant records, but until now it has not generally been possible to take into account the factual evidence of the specimens he believed to be these species.

The list that follows includes only such species as are represented either by Walker's own balsam mounts or by dried specimens authenticated by references in his 1852 Catalogue. The name used by Walker is given first, followed by the modern identification of the specimens so named in his collections.

It may be noted that several of Kaltenbach's species are represented by specimens from Prussia, which were probably given to Walker by Kaltenbach himself.

abietis (Linnaeus), *Adelges*: *Adelges abietis* (Linnaeus).

absinthii Linnaeus, *Aphis*: specimens so labelled include *Macrosiphoniella artemisiae* (Fonscolombe) from *Artemisia absinthium*, *Macrosiphoniella millefolii* (Degeer) from *Achillea millefolium*, and *Macrosiphoniella tanacetaria* (Kaltenbach) from *Tanacetum vulgare*. Walker's description of *absinthii* (1848c, p. 202) refers in fact to *artemisiae* (*vide* Laing 1923, p. 238). Walker (1848c) regarded *tanacetii* Linnaeus, *artemisiae* Fonscolombe, *tanacetaria* Kaltenbach, and *tanaceticola* Kaltenbach as synonyms of *absinthii* Linnaeus, but in the Catalogue (1852, p. 965) the last two are dropped from the synonymy.

aceris Linnaeus, *Aphis*: most of the specimens are *Periphyllus testudinatus* (Thornton), together with a few individuals of *P. aceris* (Linnaeus), *P. aceris acericola* (Walker), and *P. hirticornis* (Walker).

agilis Kaltenbach, *Aphis*: *Protolachnus agilis* (Kaltenbach) and *P. brevipilosus* (Börner).

alni Degeer, *Aphis*: *Myzocallis* (*Pterocallis*) *alni* (Degeer).

annulata Hartig, *Aphis*: redescribed by Walker (1848a, pp. 337-340) as *Aphis quercus* Kaltenbach, which name his slides still bear. In the Catalogue (1852, p. 943) he put *quercus* Kaltenbach as a synonym of *annulata* Hartig. All his specimens are *Myzocallis* (*Tuberculoides*) *annulatus* (Hartig).

antennata Kaltenbach, *Aphis*: *Monaphis antennata* (Kaltenbach).

avellanae Schrank, *Aphis*: *Corylobium avellanae* (Schrank).

avenae Fabricius, *Aphis*: redescribed by Walker (1849a, p. 45) who included *granaria* Kirby and *cerealis* Kaltenbach in the synonymy. His specimens, collected from various Gramineae, are all *Macrosiphum* (*Sitobion*) *avenae* (Fabricius).

berberidis Kaltenbach, *Aphis*: *Liosomaphis berberidis* (Kaltenbach).

betulae Linnaeus, *Aphis*: *Euceraphis punctipennis* (Zetterstedt). Walker (1848a, p. 256, and 1852, p. 936) put *nigritarsis* Heyden and (doubtfully) *punctipennis* Zetterstedt as synonyms of *betulae* L. Linnaeus's species belongs in the genus *Glyphina* Koch.

- betulae* (Kaltenbach), *Thelaxes*: three slides named by Walker '*Thelaxes betulae*' contain *Betulaphis quadrituberculata* (Kaltenbach). It seems that a mistake in labelling may have occurred here, since *Aphis quadrituberculata* Kaltenbach is itself included in the Catalogue (1852, p. 951), which indicates three specimens. None so named have been found, nor do the collections contain any specimens of true *betulae*.
- betulicola* Kaltenbach, *Aphis*: *Kallistaphis basalis* Stroyan.
- brassicae* Linnaeus, *Aphis*: *Brevicoryne brassicae* (Linnaeus).
- bumeliae* (Schrank), *Pemphigus*: the Catalogue indicates two dried specimens from Prussia and three from an unknown source. Five alatae over the name *bumeliae* in the Dry Collection are *Prociphilus bumeliae* (Schrank).
- bursarius* (Linnaeus), *Pemphigus*: *Pemphigus bursarius* (Linnaeus).
- camelliae* Kaltenbach, *Aphis*: three dried specimens from Prussia are alate *Toxoptera aurantii* (Fonscolombe).
- capreae* Fabricius, *Aphis*: specimens include *Cavariella aegopodii* (Scopoli), *C. theobaldi* (Gillette and Bragg), *C. pastinacae* (Linnaeus), *Aphis farinosa* Gmelin, and *Brachycaudus cardui* (Linnaeus) (?). Walker (1852, p. 980) placed *pastinacae* Linnaeus, *archangelicae* Scopoli, *aegopodii* Scopoli, and *podagrariae* Scopoli as synonyms of *capreae* Fabricius.
- cardui* Linnaeus, *Aphis*: *Brachycaudus cardui* (Linnaeus).
- cerasi* Fabricius, *Aphis*: *Myzus cerasi* (Fabricius).
- cerastii* Kaltenbach, *Aphis*: four dried specimens from Prussia, indicated in the Catalogue (1852, p. 1032), are *Brachycolus* ? *cerastii* (Kaltenbach).
- chelidonii* Kaltenbach, *Aphis*: two dried specimens from Prussia, indicated in the Catalogue (1852, p. 1000), are incomplete alatae, apparently of *Acyrtosiphon* (*Liporrhinus*) *chelidonii* (Kaltenbach).
- chenopodii* Schrank, *Aphis*: specimens so labelled are *Hayhurstia atriplicis* (Linnaeus), from *Atriplex rosea*. In the Catalogue (1852, p. 982) both *atriplicis* and *chenopodii* are included as synonyms of *Aphis rumicis* (Linnaeus).
- convolvuli* Kaltenbach, *Aphis*: the Catalogue (1852, p. 1000) indicates the presence of material from Prussia but enumerates no specimens. Of twelve specimens named *convolvuli* in the Dry Collection, nine are apterous and alate *Myzus persicae* (Sulzer) from *Convolvulus sepium* and *C. soldanella*, and three appear to be alate *Brachycaudus helichrysi* (Kaltenbach) from the latter host.
- corni* (Fabricius), *Schizoneura*: Walker's specimens are apparently *Anoecia corni* (Fabricius). Two of his slides are labelled 'Aix la Chapelle', the home of Kaltenbach.
- coryli* Goetze, *Aphis*: *Myzocallis coryli* (Goetze).
- costata* Zetterstedt, *Aphis*: *Cinara* (*Lachniella*) *costata* (Zetterstedt).
- degeeri* Kaltenbach, *Pemphigus*: the Catalogue (1852, p. 1056) indicates four dried specimens from Prussia. Of three so named in the Dry Collection, two (incomplete) are apparently alate *Thecabius affinis* (Kaltenbach) and one a fundatrix of *Prociphilus bumeliae* (Schrank).
- dianthi* Schrank, *Aphis*: Walker's slides so named contain *Myzus persicae* (Sulzer) from potato and greenhouse plants. In the Catalogue (1852, p. 990) *solani* Kaltenbach is included as a doubtful synonym of *dianthi*.
- dryophila* (Schrank), *Thelaxes*: *Thelaxes dryophila* (Schrank).
- epilobii* Kaltenbach, *Aphis*: *Aphis epilobii* Kaltenbach (see p. 64).
- euonymi* Fabricius, *Aphis*: the specimens, all of which are from *Euonymus*, appear to be mostly *Aphis euonymi* Fabricius or *cognatella* Jones, with some *Aphis fabae* Scopoli. Walker's description of *euonymi* (1850a, p. 278) seems to apply mainly to *fabae*, although two of his 'varieties' are characterized by reddish coloration suggestive of *euonymi* or *cognatella*.

fagi Linnaeus, *Aphis*: *Phyllaphis fagi* (Linnaeus).

galeopsidis Kaltenbach, *Aphis*: specimens so named include *Cryptomyzus galeopsidis* (Kaltenbach) from *Stachys*, *C. ribis* (Linnaeus) from *Lamium album* and *Stachys*, and *Capitophorus hippophaes* (Walker) from *Polygonum persicaria*.

glyceriae Kaltenbach, *Aphis*: *Sipha glyceriae* (Kaltenbach).

hederae Kaltenbach, *Aphis*: *Aphis hederae* Kaltenbach.

helichrysi Kaltenbach, *Aphis*: the majority of specimens so named are *Brachycaudus helichrysi* (Kaltenbach).

hieracii Kaltenbach, *Aphis*: *Nasonovia ribis-nigri* (Mosley).

hirtellus (Haliday), *Aphis*: *Atheroides hirtellus* Haliday.

humuli Schrank, *Aphis*: *Phorodon humuli* (Schrank).

jacobaeae Schrank, *Aphis*: *Aphis jacobaeae* Schrank.

juglandicola Kaltenbach, *Aphis*: *Chromaphis juglandicola* (Kaltenbach).

juglandis Frisch, *Aphis*: *Callaphis juglandis* (Frisch).

juniperi Degeer, *Aphis*: *Cinara (Cupressobium) juniperi* (Degeer).

lactucae Linnaeus, *Aphis*: the majority of specimens are *Hyperomyzus lactucae* (Linnaeus) from *Ribes*, *Sonchus*, and *Crepis*; a few are *Nasonovia ribis-nigri* (Mosley) from *Lactuca*, *Hyperomyzus lampsanae* Börner, labelled from *Crepis*, and *Cryptomyzus galeopsidis* (Kaltenbach) from *Ribes*. In the Catalogue (1852, p. 973) *ribis-nigri* is given as a synonym of *lactucae* Linnaeus.

lactucae Mosley, *Eriosoma*: several slides so named contain *Pemphigus bursarius* (Linnaeus) from roots of *Lactuca*, *Sonchus*, etc., and one contains *Aploneura lentisci* (Passerini) from grass roots. Although acquainted with *bursarius* on poplar, Walker failed to recognize it on its secondary hosts. In the Catalogue (1852, p. 1055) *lactucae* Mosley is given as a doubtful synonym of *Pemphigus ranunculi* (i.e. *Thecabius affinis* (Kaltenbach)).

lanigera (Hausmann), *Schizoneura*: *Eriosoma lanigerum* (Hausmann). One slide labelled '*E. lanigera*. Southgate. Oct. 17, 1847.' (N.M.I. 125), without host plant record, contains alatae of *Prociphilus pini* (Burmeister) and *Mimeuria ulmiphila* (Guercio).

laricis (Hartig), *Adelges*: *Adelges laricis* Vallot.

leucanthemi Scopoli, *Aphis*: *Brachycaudus helichrysi* (Kaltenbach).

ligustri Mosley, *Aphis*: *Myzus ligustri* (Mosley).

lychnidis Linnaeus, *Aphis*: *Brachycaudus lychnidis* (Linnaeus) and *B. klugkisti* Börner.

lythri Schrank, *Aphis*: *Myzus lythri* (Schrank).

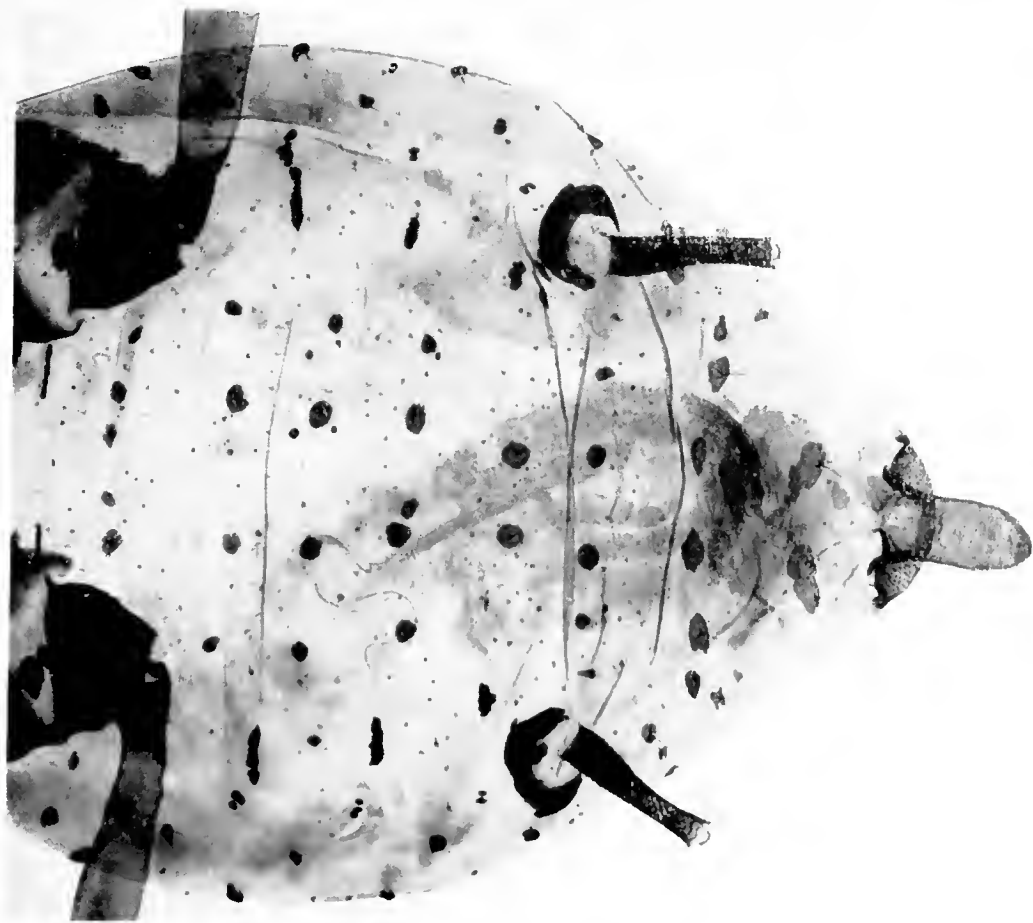
mali Fabricius, *Aphis*: Walker's slides so named contain *Aphis pomi* Degeer and *Ovatus insitus* (Walker) from *Crataegus*, *Rhopalosiphum insertum* (Walker) from *Malus* and *Mespilus*, and *Dysaphis (Pomaphis) plantaginea* (Passerini) from *Malus*. In the Catalogue (1852, p. 985) *pomi* Degeer, *pyri* Fonscolombe and *oxyacanthae* Schrank are included as synonyms of *mali* Fabricius.

malvae Mosley, *Aphis*: redescribed by Walker (1848c, p. 429) with *pelargonii* Kaltenbach as a synonym. In the Catalogue (1852, p. 968) *pelargonii* is again listed as a synonym and thirteen balsam mounts are indicated. Although no slides named *malvae* have come to light, there are nine named *pelargonii*, which may be some of those referred to in the Catalogue. One of them (B.M. 624), beside the name *pelargonii*, does indeed bear a partly obliterated name which could be *malvae*. Six of the slides contain *Acyrtosiphon malvae* (Mosley) in the sense of Hille Ris Lambers (1947, p. 233) but not of Börner (1952, p. 154), who uses the name *Aulacorthum pelargonii* (Kaltenbach) for this species, believing *malvae* Mosley to be a synonym of *persicae* Sulzer. The specimens on these slides were taken from mallow and *Pelargonium*;

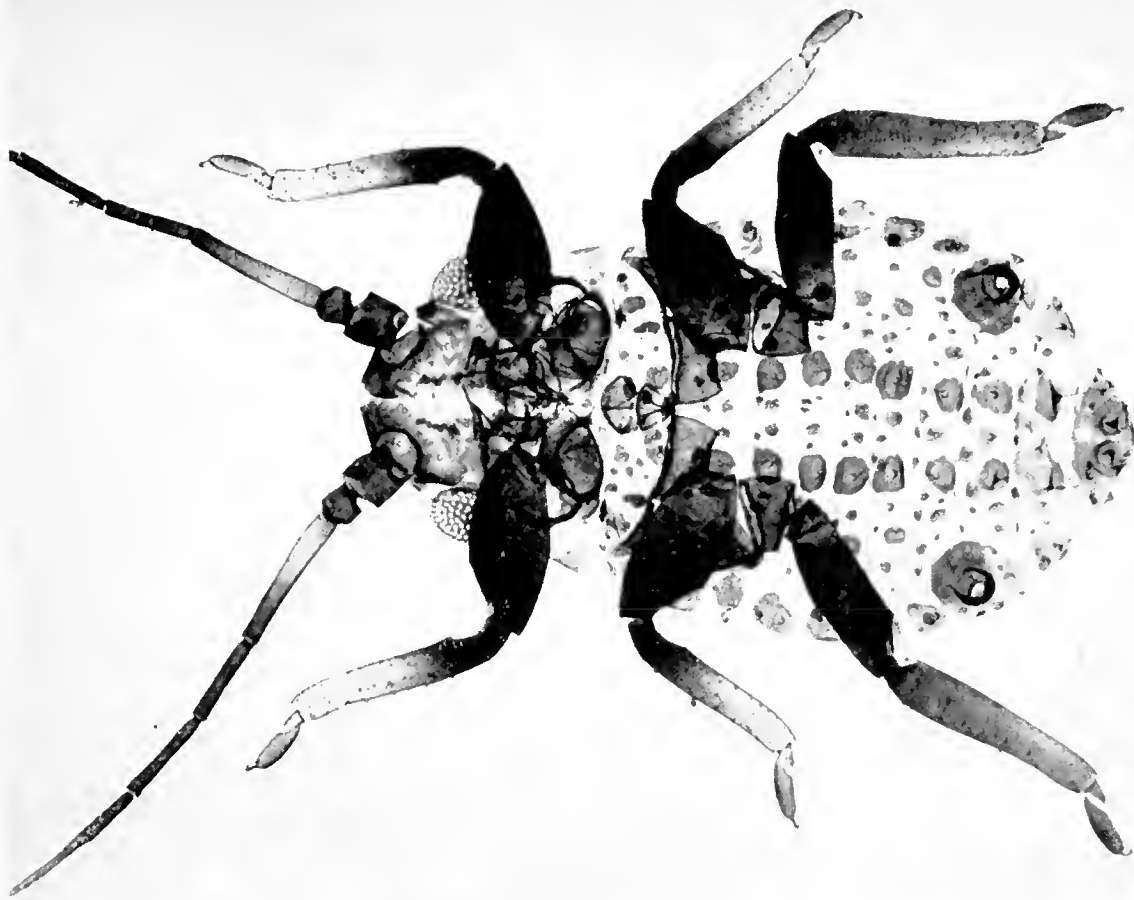
- those on the remaining three slides are *Aulacorthum solani* (Kaltenbach) from columbine and *Calceolaria*.
- millefolii* Fabricius, *Aphis*: *Macrosiphoniella millefolii* (Degeer).
- myricae* Kaltenbach *Aphis*: redescribed in the Catalogue (1852, p. 1003) which indicates three dried specimens. Two that remain are *Myzocallis myricae* (Kaltenbach).
- nasturtii* Kaltenbach, *Aphis*: most of the specimens are *Aphis nasturtii* Kaltenbach from *Nasturtium officinale*, *Polygonum persicaria*, and *Rumex*.
- nepetae* Kaltenbach, *Aphis*: the Catalogue (1852, p. 1003) indicates nine dried specimens from Prussia. All still exist and are alatae, presumably of *Aphis nepetae* Kaltenbach.
- nymphaeae* Linnaeus, *Aphis*: *Rhopalosiphum nymphaeae* (Linnaeus).
- oblonga* Heyden, *Aphis*: *Symydobius oblongus* (Heyden).
- ononidis* Kaltenbach, *Aphis*: *Thericaphis ononidis* (Kaltenbach).
- padi* Linnaeus, *Aphis*: *Rhopalosiphum padi* (Linnaeus). All Walker's specimens are from *Prunus padus*.
- pelargonii* Kaltenbach, *Aphis*: see *malvae* Mosley.
- persicae* Sulzer, *Aphis*: specimens from peach are *Myzus persicae* (Sulzer) and *Brachycaudus (Appelia) schwartzi* Börner. Those from *Prunus spinosa* are *B. (Appelia) prunicola* (Kaltenbach). Most of Walker's redescription of *persicae* (1850a, p. 14) applies to Sulzer's species, but some of the 'varieties' refer to *schwartzi* or *prunicola*.
- pineti* Fabricius, *Aphis*: *Schizolachnus pineti* (Fabricius).
- pini* Linnaeus, *Aphis*: *Cinara pinea* (Mordvilko) *sensu* Hille Ris Lambers (1948, p. 274). Walker included (1852, p. 955) *nuda pini* Degeer as a synonym of *pini* Linnaeus.
- pinicola* Kaltenbach, *Aphis*: the majority of specimens so named are *Cinara pini* (Linnaeus) *sensu* Hille Ris Lambers (1948, p. 274).
- platani* Kaltenbach, *Aphis*: six dried specimens from Russia (*sic*) indicated in the Catalogue (1852, p. 946) are *Tinocallis platani* (Kaltenbach). 'Russia' is presumably a misprint for 'Prussia', since Walker (1848a, p. 344), redescribing this species, stated '... the following notes are taken from specimens given to me by Professor Kaltenbach of Aix-la-Chapelle ...' Walker used the name *platanicola* here instead of *platani*, a mistake he corrected in the Catalogue (*loc. cit.*).
- platanoidis* Schrank, *Aphis*: *Drepanosiphum platanoides* (Schrank).
- populea* Kaltenbach, *Aphis*: *Pterocomma populea* (Kaltenbach).
- populi* Linnaeus, *Aphis*: *Chaitophorus (Eichochaitophorus) versicolor* (Koch).
- pruni* Fabricius, *Aphis*: the majority of Walker's specimens are *Hyalopterus pruni* (Geoffroy).
- quercea* Kaltenbach, *Aphis*: *Tuberculatus querceus* (Kaltenbach).
- quercus* Kaltenbach, *Aphis*: see *annulata* Hartig.
- quercus* Linnaeus, *Aphis*: *Stomaphis quercus* (Linnaeus).
- quercus* Fonscolombe, *Phylloxera*: *Phylloxera quercus* Fonscolombe.
- radicis* Kaltenbach, *Trama*: see *trogodytes* Heyden.
- ranunculi* Kaltenbach, *Pemphigus*: the specimens on Walker's slides, together with two dried specimens from Prussia, are *Thecabius affinis* (Kaltenbach).
- ribicola* Kaltenbach, *Aphis*: two dried specimens from Prussia are indicated in the Catalogue (1852, p. 1000). Two specimens over the name '*Siphonophora ribicola* Koch. Prussia.' in the Dry Collection may be those referred to. One is too fragmentary for identification; the other is *Nasonovia ribis-nigri* (Mosley).
- ribis* Linnaeus, *Aphis*: rather more than half of Walker's slides contain *Cryptomyzus ribis* (Linnaeus). The remainder consist of *C. galeopsidis* (Kaltenbach) together with a few specimens

- of *Hyperomyzus lactucae* (Linnaeus) and *Nasonovia ribis-nigri* (Mosley). All are from *Ribes*. Some dried specimens recorded as having been presented by Doubleday from Scotland are *C. galeopsidis* (Kaltenbach).
- roboris* Linnaeus, *Aphis*: a mixture of *Lachnus roboris* (Linnaeus) and *Schizodryobius longirostris* (Mordvilko).
- rosae* Linnaeus, *Aphis*: *Macrosiphum rosae* (Linnaeus).
- rosarum* Kaltenbach, *Aphis*: specimens from *Rosa* are *Myzaphis rosarum* (Kaltenbach); those named *rosarum* from *Hippophaes* are Walker's types of *Capitophorus hippophaes*.
- rubi* Kaltenbach, *Aphis*: a mixture of *Amphorophora rubi* (Kaltenbach), *Macrosiphum funestum* (Macchiati) and *M. (Sitobion) fragariae* (Walker) from *Rubus*; *Macrosiphum gei* (Koch) from *Geum*, and *Macrosiphum euphorbiae* (Thomas) (or perhaps *tincta* Walker, if this species is distinct from *euphorbiae*) from *Epilobium*. In his list of host plants of *rubi* (1848c, p. 243) Walker includes *Geum urbanum* and *Epilobium montanum* in addition to various *Rubus* species.
- rumicis* Linnaeus, *Aphis*: specimens from *Rumex* are *Aphis rumicis* Linnaeus; those from bean, rhubarb, *Polygonum*, *Dahlia*, and *Sedum* are *Aphis fabae* Scopoli; from *Sarothamnus*, *Aphis sarothamni* Franssen; from *Ulex*, *Aphis ulicis* Walker; and from *Aster tripolium*, *Aphis tripolii* Laing.
- saliceti* Kaltenbach, *Aphis*: *Aphis farinosa* Gmelin.
- salicis* Linnaeus, *Aphis*: a single slide named *salicis* by Walker contains *Pterocomma pilosa* Buckton.
- sambuci* Linnaeus, *Aphis*: *Aphis sambuci* Linnaeus.
- sedii* Kaltenbach, *Aphis*: *Aphis sedii* Kaltenbach.
- serrulatus* (Haliday), *Aphis*: *Atheroides serrulatus* Haliday.
- setosa* Kaltenbach, *Aphis*: three of the four dried specimens from Prussia indicated in the Catalogue (1852, p. 1033) remain. They are *Ctenocallis setosa* (Kaltenbach).
- sonchi* Linnaeus, *Aphis*: a mixture of *Dactynotus cirsii* (Linnaeus) from thistle and *D. (Uromelan) jaceae* (Linnaeus) from *Centaurea nigra*. One slide, labelled 'thistle' does contain what appears to be *Dactynotus sonchi* (Linnaeus). In his list of synonyms of *sonchi* (1852, p. 963) Walker included *cirsii* and *jaceae*, together with *picridis* Fabricius, *cnici* Schrank, *solidaginis* Fabricius, *campanulae* Kaltenbach, and *taraxaci* Kaltenbach.
- sorbi* Kaltenbach, *Aphis*: most of Walker's slides contain *Dysaphis (Pomaphis) plantaginea* (Passerini) from apple and *Sorbus*, together with a few specimens of *Dysaphis (Pomaphis) sorbi* (Kaltenbach) and *D. (P.) aucupariae* (Buckton) from *Sorbus torminalis*.
- stigma* Curtis, *Schizoneura*: a single dried specimen labelled as having been presented by J. C. Dale appears to be *Anoecia corni* (Fabricius), and agrees with Walker's description (1852, p. 1050).
- symphiti* Schrank, *Aphis*: nearly all the specimens are apparently *Aphis symphiti* Schrank.
- tiliae* Linnaeus, *Aphis*: *Eucallipterus tiliae* (Linnaeus).
- tragopogonis* Kaltenbach, *Aphis*: four of the six dried specimens from Prussia indicated in the Catalogue (1852, p. 1007) still exist. They appear to be alate *Brachycaudus (Appelia) tragopogonis* (Kaltenbach).
- trogodytes* Heyden, *Trama*: all but one of thirteen slides named *trogodytes*, or *radicis*, which Walker regarded as a synonym, contain *Neotrama caudata* (Guercio) from roots of *Sonchus* and *Cichorium*; the remaining slide contains *Trama troglodytes* from *Cichorium*.
- ulmariae* Schrank, *Aphis*: it appears from his list of host plants (1848c, p. 421) that Walker confused a number of species of large green aphids under this name. His synonymy, however, which includes *onobrychis* Fonscolombe, *pisi* Kaltenbach, *lathyri* Mosley, and *pisum* Harris suggests that he believed them all to be the pea aphid. Such of his specimens as remain

- (considerably fewer than are indicated in the Catalogue) are *Acyrtosiphon pisum* (Harris) from Papilionaceae, together with a few specimens of *Macrosiphoniella oblonga* (Mordvilko) from *Artemisia* and *Macrosiphoniella persequens* (Walker) from *Tanacetum*.
- ulmi* (Linnaeus), *Schizoneura*: *Eriosoma ulmi* (Linnaeus).
- urticae* Schrank, *Aphis*: all specimens so named from *Urtica* are *Microlophium evansi* (Theobald). One slide labelled '*urticae*' from *Geranium robertianum* contains *Acyrtosiphon malvae geranii* (Kaltenbach). Walker (1848c, p. 428) included *Malva*, *Geranium*, and *Chelidonium* among the host plants of *urticae*.
- urticaria*, Kaltenbach, *Aphis*: specimens from *Urtica* are *Aphis urticata* Fabricius. A few from *Rubus*, which Walker (1849b, p. 41) included as a host of *urticaria*, are *Aphis ruborum* (Börner).
- vacca* Hartig, *Rhizoterus*: in the Catalogue (1852, p. 1060) Walker described under this name an aphid from *Sonchus* roots, followed by a 'variety' 'found by Mr. Hardy, under stones, near Newcastle'. A balsam mount is indicated and two dried specimens from Prussia. The latter exist and are apterae of *Paracletus cimiciformis* Heyden. No slides named *vacca* have been found. Walker gave *Forda formicaria* Heyden as a synonym of *vacca*, and regarded *cimiciformis* as a distinct species.
- viburni* Fabricius, *Aphis*: the majority of specimens, all of which are from *Viburnum opulus* or *V. lantana*, are *Ceruraphis eriophori* (Walker). The remainder appear to be *Aphis viburni* Scopoli.
- xylostei* Schrank, *Aphis*: *Hyadaphis foeniculi* (Passerini).
- xylostei* (Degeer), *Pemphigus*: two dried specimens from Prussia indicated in the Catalogue are *Prociphilus* (*Stagona*) *xylostei* (Degeer).



A



B

Plate I

A. *Macrosiphoniella (Asterobium) asteris* (Walker). lectotype, apterous viviparous female, $\times 61$, B.M. 108a. Neg. no. 23388.
 B. *Iziphya bufo* (Walker), holotype, larva, $\times 52$, B.M. 173. Neg. no. 23389.



C



D

Plate II

C. *Ceruraphis eriophori* (Walker), lectotype, apterous viviparous female, $\times 58$, B.M. 335. Neg. nos. 23215, 6.
 D. *Macrosiphum* (*Sitobion*) *fragariae* (Walker), lectotype, alate viviparous female, $\times 42$, B.M. 361. Neg. no. 23390.



E



F

Plate III

E. *Capitophorus hippophaes* (Walker), lectotype, apterous viviparous female, $\times 127$, B.M. 843. Neg. no. 23391.
 F. *Periphyllus lirticornis* (Walker), holotype, alate viviparous female, $\times 77$, B.M. 422. Neg. no. 23392.

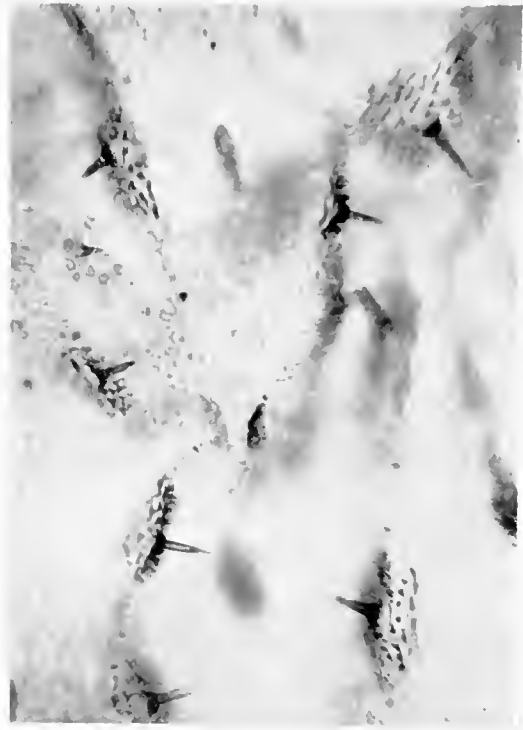
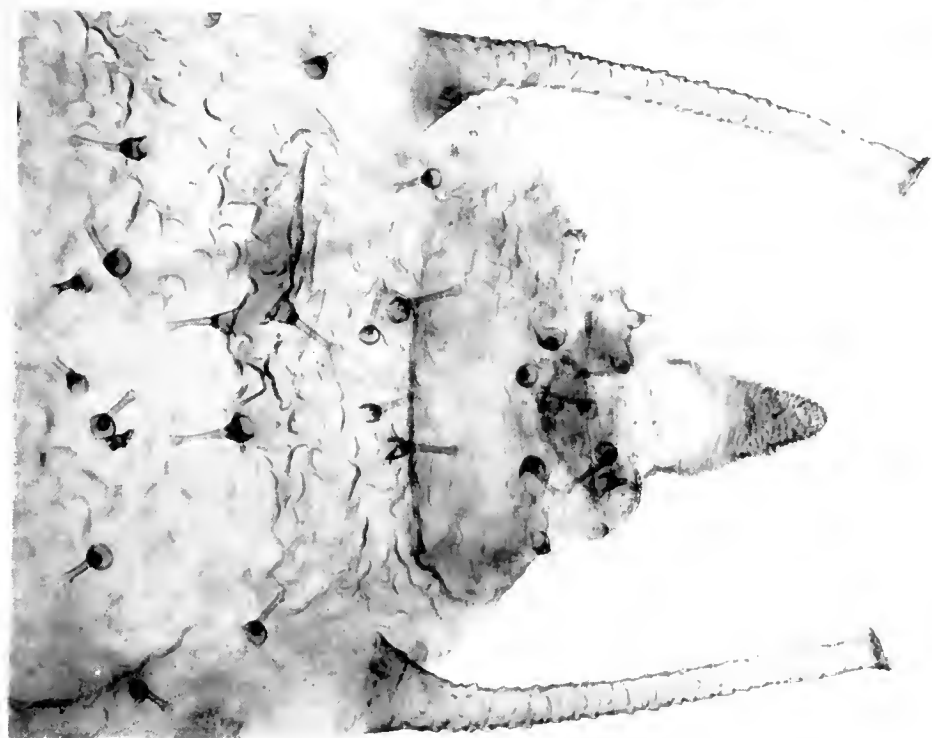


Plate IV

G. Siphia littoralis (Walker), lectotype, apterous viviparous female, B.M. 513. Whole insect, $\times 56$, and enlarged views of head and dorsal abdominal integument, $\times 220$. *Neg. nos.* 23393, 4, 5.



H



J

Plate V

H. *Chaetosiphon* (*Pentatrachopus*) *potenillae* (Walker), lectotype, apterous viviparous female, $\times 137$, B.M. 722. Neg. no. 23397.
 J. *Macrosiphoniella pulvra* (Walker), lectotype, oviparous female, $\times 50$, B.M. 745. Neg. no. 23403.



N



O

Plate VIII

N. Megourella tribulis (Walker), holotype, apterous viviparous female, $\times 43$, B.M. 998. Neg. no. 23401.
O. Aphis ulicis (Walker), lectotype, apterous viviparous female, $\times 72$, B.M. 879. Neg. no. 23402.

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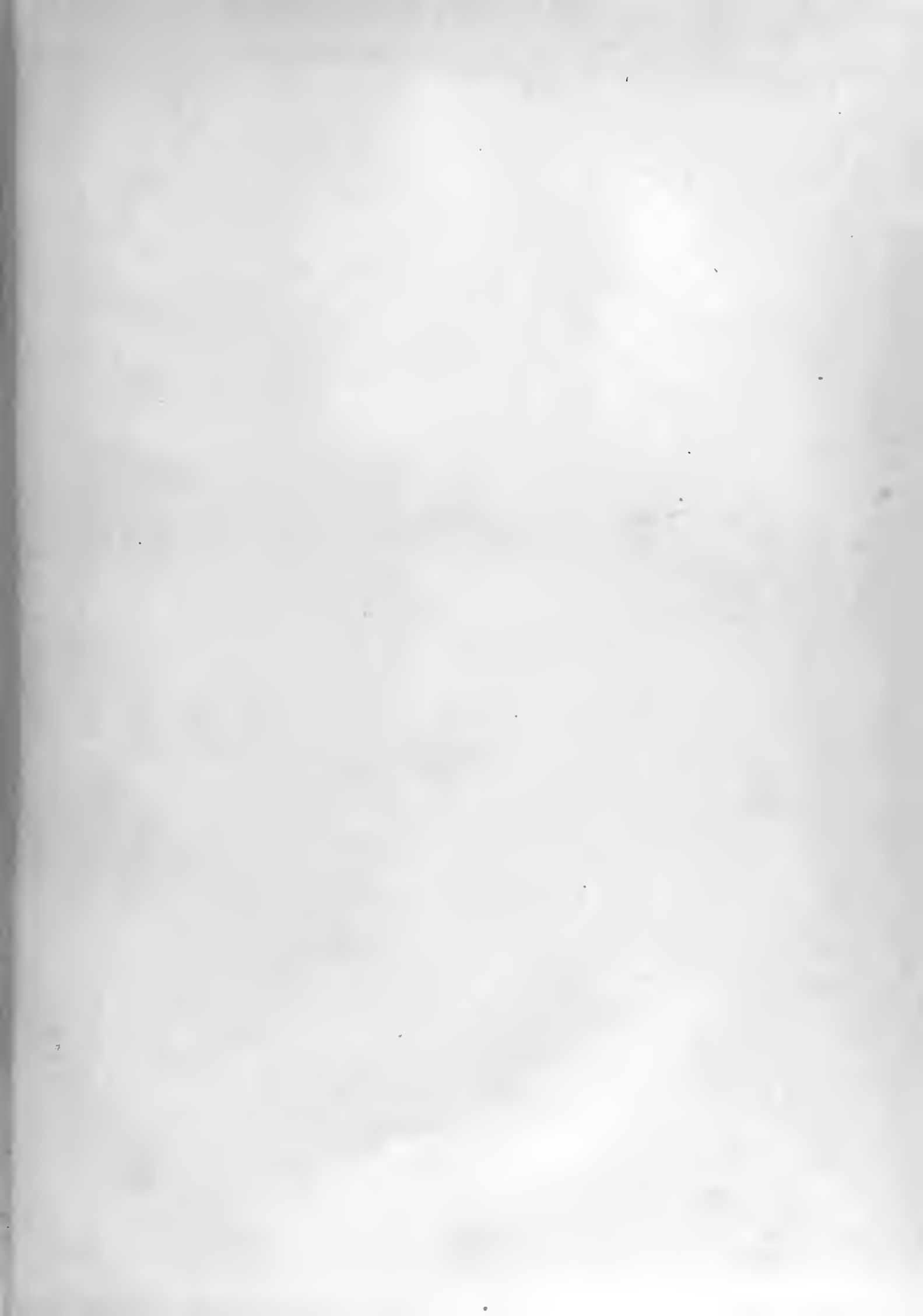
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